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Interagency Committee on Ocean Pollution Research, Development, and Monitoring / Federal Coordinating Council for Science, Engineering, and Technology

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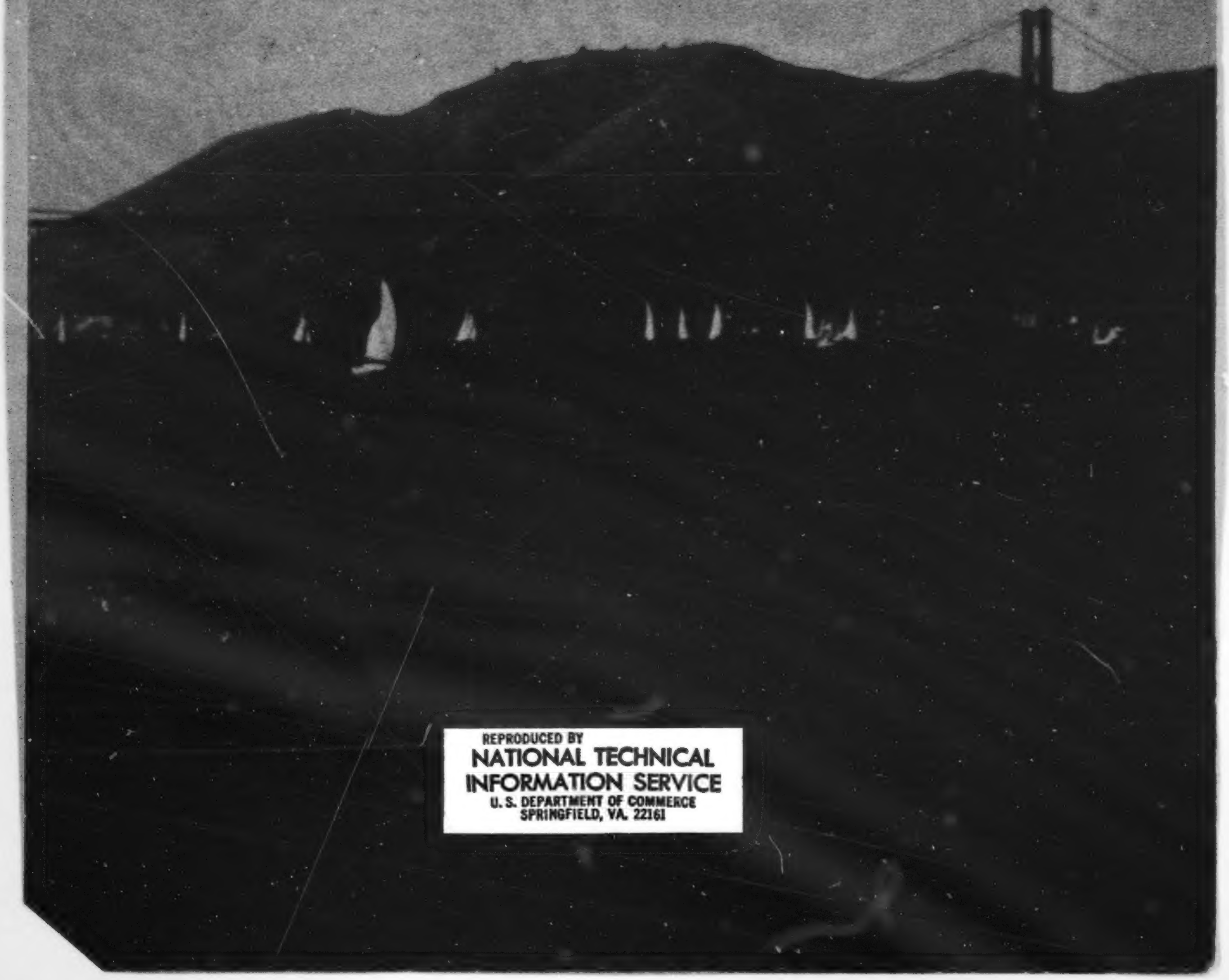

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Assistant Administrator for Research and Development
U.S. Environmental Protection Agency

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National Science Foundation

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U.S. Department of Commerce

Observer:

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Office of Management and Budget

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U.S. Department of Commerce

George Peter
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U.S. Department of Commerce

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U.S. Department of Agriculture

CDR Joe Valenti
Coast Guard
U.S. Department of Transportation

STAFF

Dail Brown, Claire Friedman, Lowell Martin, Barbara Pijanowski, and Shirley Selim
National Oceanic and Atmospheric Administration
U.S. Department of Commerce

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16. ABSTRACT

The National Ocean Pollution Research and Development and Monitoring Planning Act of 1978 was signed as Public Law 95-273, in May 1978, to establish a comprehensive 5-year plan to provide planning for, coordination of, and dissemination of, information with respect to such programs within the Federal Government. This document presents a detailed inventory of Federal ocean pollution research development and monitoring programs and is the basis upon which all descriptions and analyses of Federal activities in the Plan are made. The plan analyzes the overall program from the perspectives of pollutants under study, specific geographic concerns, sources, or causes of pollution and control and mitigation. All projects have been classified, where appropriate, into these categories. The Act designated the Administrator of the National Oceanic and Atmospheric Administration (NOAA) as responsible for the preparation of the Plan, in consultation with other Federal agencies having ocean pollution research, development, and monitoring responsibilities. An Interagency Committee is responsible for most of the information gathering and analysis. (Sinha - OEIS)

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August 1979

Interagency Committee on Ocean Pollution Research, Development, and Monitoring / Federal Coordinating Council for Science, Engineering, and Technology

PREFACE

In May, 1978, President Carter signed Public Law 95-273 -- the National Ocean Pollution Research and Development and Monitoring Planning Act of 1978 (the Act). The Act that the Executive Branch -- "establish a comprehensive 5-year plan for Federal ocean pollution research and development and monitoring programs in order to provide planning for, coordination of, and dissemination of, information with respect to such programs within the Federal Government."

Specifically, the Act requires the Plan to include a detailed inventory of existing Federal programs, an assessment and ordering of national needs and problems, an analysis of the extent to which existing programs assist in meeting these priorities, recommendations for changes in the overall Federal effort where necessary, and a report on budget coordination efforts.

The Act designated the Administrator of the National Oceanic and Atmospheric Administration (NOAA) as responsible for preparation of the Plan, in consultation with other Federal agencies having ocean pollution research, development, and monitoring responsibilities. An Interagency Committee on Ocean Pollution Research, Development, and Monitoring (Interagency Committee) which was empaneled by the Office of Science and Technology Policy in the Executive Office of the President was responsible for most of the information gathering and analysis required in the preparation of the first Federal Plan. The agencies represented on the Interagency Committee were as follows:

Department of Agriculture
Department of Commerce
Department of Defense
Department of Energy
Environmental Protection Agency
Department of Health, Education, and Welfare
Department of the Interior
National Aeronautics and Space Administration
National Science Foundation
Nuclear Regulatory Commission
Department of Transportation
Council on Environmental Qualtiy
Office of Management and Budget*

This document presents a detailed inventory of Federal ocean pollution research development and monitoring programs as required by Section 4(b)(2) of the Act. It is Working Paper No. 1 of the Federal Plan for Ocean Pollution Research, Development and Monitoring, Fiscal Years 1979-1983 and is the basis upon which all descriptions and analyses of Federal activities in the Plan are made.

The Federal program for fiscal years 1978 through 1980 is comprised of the projects listed in this inventory. The Federal Plan for Ocean Pollution Research, Development, and Monitoring, Fiscal Years 1979-1983, analyzes the overall program from the perspectives of pollutants under study, specific geographic concerns, sources, or causes of pollution and control and mitigation. All projects have been classified, where appropriate, into these categories, and analyses from each of these perspectives appear in the Plan.

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*observer

Additional information on overall agency programs can be obtained from the following agency personnel:

Department of Agriculture	Jerry C. Ritchie National Program Staff (301) 344-3105
Department of Commerce	George Peter Office of Marine Pollution Assessment (301) 443-8963
Department of Defense	Col. Elbert W. Friday Office of Undersecretary for Research and Engineering Office of Environmental Life Sciences USAF (202) 695-9759
Department of Energy	D. Heyward Hamilton Office of Environment (301) 353-5324
Environmental Protection Agency	Paul Lefcourt Office of Research and Development Energy Effects Division (202) 426-0288
Department of Health, Education, and Welfare	Phil Janus Office of the Science Advisor to the Assistant Secretary for Health (301) 443-2650
Department of the Interior	Sie Ling Chiang U.S. Geological Survey Environmental Analysis Section (703) 860-7136 FTS 928-7236
National Aeronautics and Space Administration	Harvey Melfey Earth Observations Systems Division (301) 344-6348

National Science Foundation	Robert Carney Biological Oceanography (202) 632-5858
Nuclear Regulatory Commission	Daniel Muller Division of Site Safety and Environmental Analysis (301) 492-7017
Department of Transportation	Cdr. Joe Valenti U.S. Coast Guard Pollution Response Branch (202) 426-9568

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SUMMARY OF FEDERAL PROGRAMS

Ocean pollution research, development, and monitoring programs are currently carried out or sponsored by eleven different Federal departments and agencies. Almost one thousand individual projects have been identified and summarized in this document. An overall examination of the information shows that the Federal program was $164,736,000 in fiscal year 1978. The Funding level for FY 1979 was $161,785,000 and the projected level for FY 1980 is $188,388,000. The eleven Federal departments and agencies that are involved in the Federal effort are listed in table 1 along with their expenditures for FY 1978 and 1979 and projected expenditures for FY 1980.

Table 1.--Federal Ocean Pollution Research, Development, and Monitoring Programs

	FY 78 (Actual)	FY 79 (Estimated)	FY 80 (Estimated)
		Thousand dollars	
Department of Agriculture	$ 115	$ 115	$ 115
Department of Commerce	17,538	19,818	24,711
Department of Defense	8,802	7,321	6,565
Department of Energy	15,670	16,876	15,227
Environmental Protection Agency	34,989	36,426	40,407
Department of Health, Education, and Welfare	3,898	3,733	3,583*
Department of the Interior	56,392	52,556**	76,519
National Aeronautics and Space Administration	1,750	531	650
National Science Foundation	15,534	15,006	13,655*
Nuclear Regulatory Commission	1,245	955	965
Department of Transportation	8,803	8,448	5,991
	$164,736	$161,785	$188,388

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* Some projects were completed in FY 78 and FY 79. Additional projects (as yet unspecified) will be initiated in and FY 80.

**$7,700k supplemental fiscal year 1979 funds approved in August, 1979; this information received too late to be incorporated in subsequent analyses.

Of the total Federal program budget, 75 percent was funded by four mission-oriented agencies: Department of Commerce, Department of Energy, Environmental Protection Agency, and the Department of the Interior. The Department of the Interior was the single largest funded agency, accounting for 34 percent of the FY 1978 program, with the Environmental Protection Agency second at 21 percent, the Department of Commerce third at 11 percent, and the Department of Energy fourth at 10 percent. When interagency transfer of funds is taken into account, however, the Department of Commerce is the single largest funded agency.

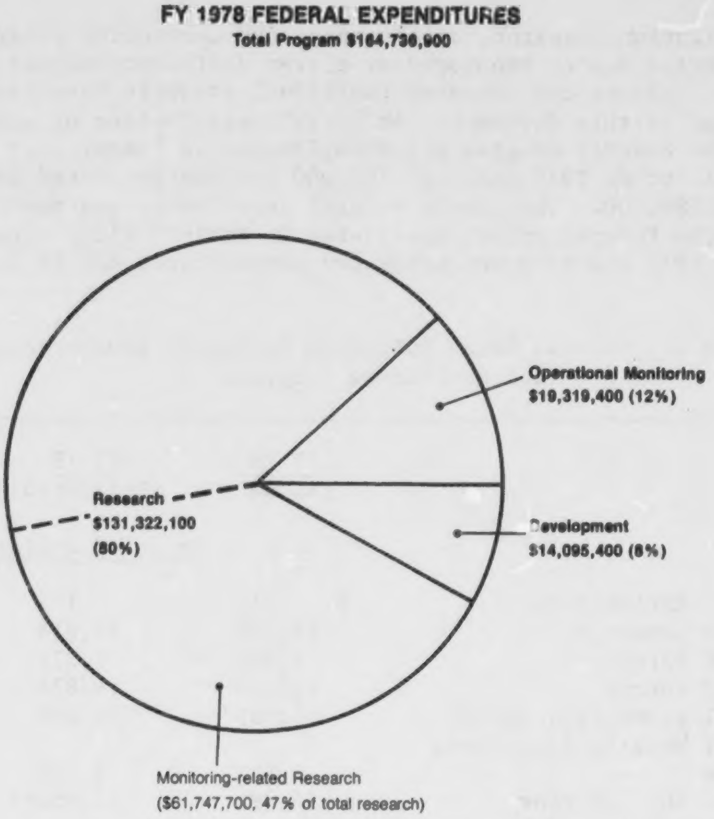


Figure 1 — FY 1978 Federal Program for Ocean Pollution Research, Development and Monitoring

Based on the projects listed in this catalog, figure 1 summarizes the research, development, and monitoring aspects of the Federal program for fiscal year 1978. As illustrated, 80 percent of the program was devoted to research studies, 8 percent to development, and 12 percent to monitoring. Projects listed in the catalog were grouped, where appropriate, in several categories according to the way in which they related to:

- pollutant or pollutants of concern
- geographic region of concern
- cause of ocean pollution
- controlling and mitigating ocean pollution

Appendix A summarizes these categories and the classification system used in the analyses of the Federal program. It also provides an index of projects, by agency and project number, as they were classified.

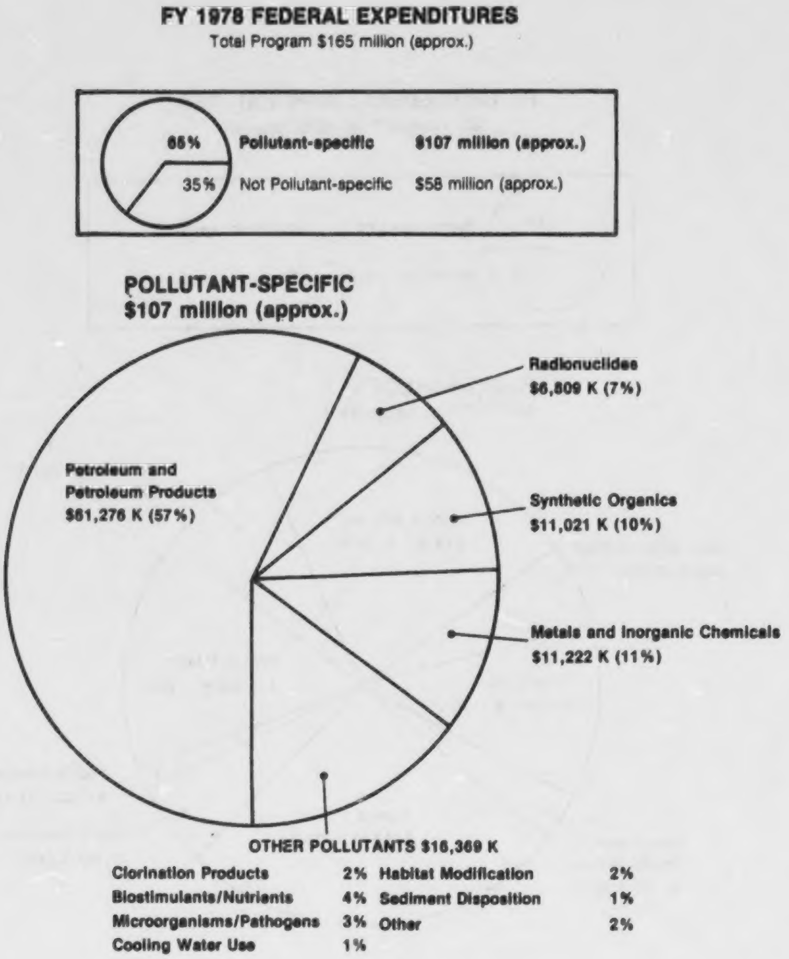
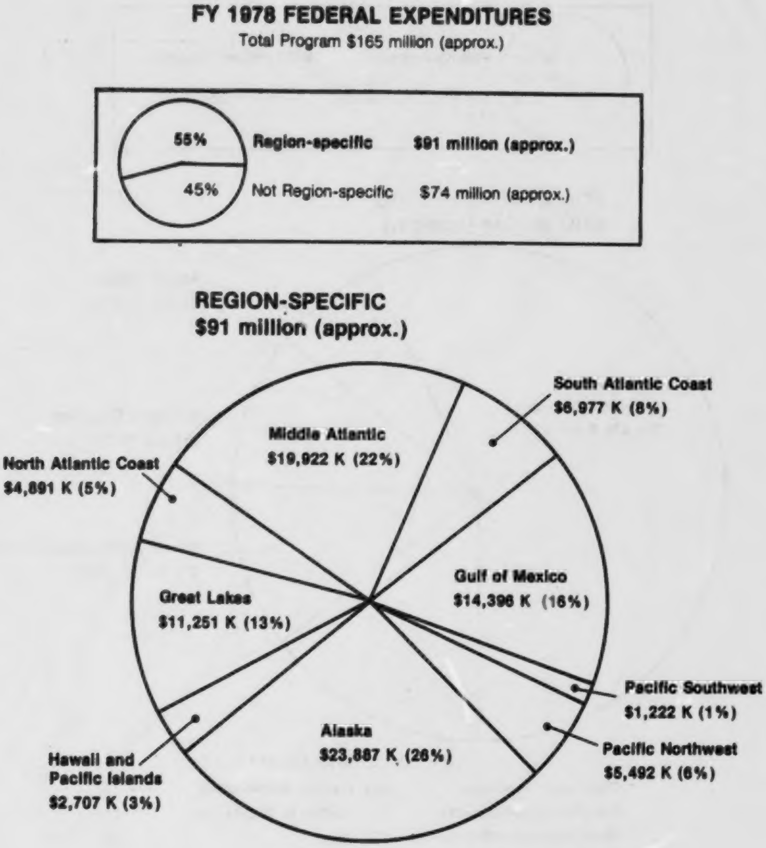


Figure 2—FY 1978 Federal Program for Ocean Pollution Research, Development and Monitoring: Pollutants

Figures 2 through 4 summarize the Federal program in the broad program areas that were examined. Figure 2 illustrates program composition from the perspective of pollutants of concern. More than one-half of the program directed toward specific pollutants is devoted to petroleum related studies.


FY 1978 FEDERAL EXPENDITURES

Total Program $165 million (approx.)

REGION-SPECIFIC

$91 million (approx.)

Figure 3 — FY 1978 Federal Program for Ocean Pollution Research, Development and Monitoring: Regions

Figure 3 analyzes the program from a regional perspective and shows that sixty percent of the Federal program is focused on regional problems with Alaska and the Mid-Atlantic region receiving major emphasis.

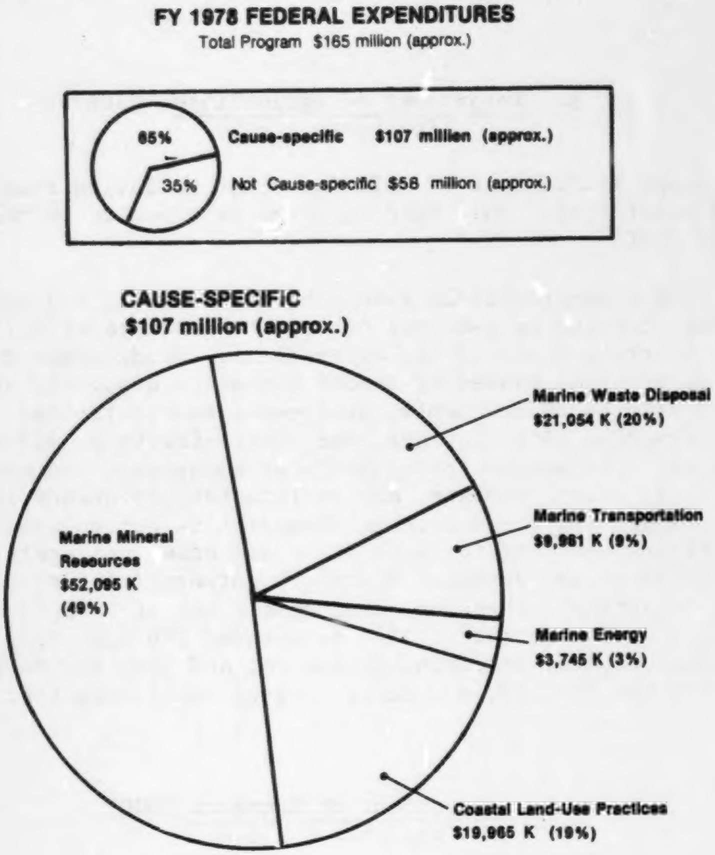


Figure 4 —FY 1978 Federal Program for Ocean Pollution Research, Development and Monitoring: Causes of Pollution

Figure 4 analyzes the program by causes of pollution. It shows that three-quarters of the Federal effort is directed at specific sources of pollution. Primary emphasis is on minerals, particularly oil and gas extraction, as a source, followed by efforts focused on waste disposal and land-use practices.

The summaries of agency activities that follow include descriptions of ocean pollution related programs and activities carried out by each agency involved in the Federal program. They also identify the major applicable authorities that provide mandates for these activities.

A. Department of Agriculture (USDA)
(projects 1 - 7)

USDA spent $115,000 in FY 1978 for ocean pollution research, development, and monitoring. This funding level is expected to remain constant through FY 1980.

Most USDA ocean pollution research, development, and monitoring efforts are directed at reducing detrimental effects of agricultural practices on the quality of the environment. Study areas include research on problems caused by runoff and waste disposal, offsite and downstream effects of sediments, nutrients, and pesticides, transport and transformation of pollutants, and their effects on different organisms and ecosystems. Emphasis is on management and use of the Nation's soil, water, and air, and on reducing pollutants in receiving estuarine, lake, and ocean waters. Research is accomplished through inhouse efforts, cooperation with State and other universities, and through contracts and grants. Statutory authorities for research include the Department of Agriculture Organic Act of 1862 (5 U.S.C. 511), Research and Marketing Act of 1946 as amended (70 S.C. 427, 4271), National Agricultural Research, Extension, and Teaching Policy Act of 1977 (Public Law 91-113), and other Congressional mandates.

B. Department of Commerce (DOC)
(projects 8 - 228)

The major ocean pollution research, development, and monitoring activities of the Department of Commerce are those of the National Oceanic and Atmospheric Administration (NOAA). Additional programs are carried out from time to time by NBS and MARAD. In FY 1978, NOAA had the third largest agency budget for ocean pollution-related work, with a total of about $17,538,000 or 11 percent of the total Federal Program. This funding is expected to increase to over $24 million in FY 1980.

Additional NOAA effort is supported through the interagency transfer of funds from other Federal agencies. The Outer Continental Shelf Environmental Assessment Program (OCSEAP) is funded entirely ($21.9 million) by the Bureau of Land Management to study environmental conditions and potential impacts of oil and gas development in Alaska. EPA transfer funds supported NOAA's pollution research efforts in FY 1978 at the $2.1 million level.

Thus, when interagency transfers of funds are considered, NOAA ranks first in the direct conduct or management of Federal ocean pollution research, development, and monitoring programs.

	FY78	FY79	FY80
	Thousand dollars		
NOAA			
Marine Ecosystems Analysis Program (MESA)	6,154	5,490	5,311
Ocean Dumping	1,900	2,295	2,870
Fisheries Habitat Investigation Program	3,522	3,378	4,713
Fisheries Microconstituent Program	495	1,196	1,206
Great Lakes Environmental Research Program	2,512	2,512	2,512
Sea Grant Program	2,358	1,648	2,712
Ocean Engineering Program	398	398	398
Other Programs	199	249	199
Long-Term Effects Program	0	2,785	4,790
Maritime Administration	0	0	0
National Bureau of Standards	0	0	0
Total:	17,538	19,818	24,711

NOAA's responsibility for planning and coordination of Federal ocean pollution research and development and monitoring is mandated in Public Law 95-273, the National Ocean Pollution Research and Development and Monitoring Planning Act of 1978. NOAA's mission in marine research is defined by Reorganization Plan No. 4 of 1970 and in numerous legislative acts including:

- The Marine Protection Research and Sanctuaries Act of 1972 (Public Law 92-532)
- The Fishery Conservation and Management Act of 1976 (P.L. 94-265)
- Fish and Wildlife Act of 1956
- Sea Grant Program Improvement Act of 1976 (Public Law 94-471)

NOAA is the lead civilian agency for dealing with the oceans as a multiple use resource that must be both used and conserved, while preserving the unique, renewable characteristics of the ocean environment. Major NOAA-funded activities in ocean pollution research, development, and monitoring include the Marine Ecosystem Analysis program (MESA), the National Marine Fisheries Services habitat investigation and microconstituent programs, the Great Lakes environmental research program, the Sea Grant Program, the Ocean Dumping and Monitoring Program, the Long-Term Effects Program, and elements of the Office of Ocean Engineering.

The Marine Ecosystems Analysis (MESA) program is comprised of a series of projects established to determine the "state-of-health" of regional marine coastal ecosystems where significant problems of management and environmental quality exist or are anticipated.

The MESA program is a focus for organizing and coordinating studies and evaluations of the effects of pollution and other human-induced changes in ocean ecosystems, and the effects of major disasters (natural or human-induced) on the marine environment.

The Ocean Dumping Program exists in response to Section 201 of Public Law 92-532. The Program designs, supports, and manages marine research and monitoring projects that apply to dumping sites for industrial, municipal, and dredged material waste.

The Fisheries Habitat Investigations program examines the effects of human-induced and natural changes on the abundance, distribution, and functioning of living marine resources of commercial and recreational importance.

The Fisheries Microconstituent research program is comprised of two complementary but distinct research areas: (1) qualitative assessment of the impact of contaminants on the fishery resources and their habitat, and (2) assessment of the impact of contaminants on the use of fishery resources from a public health standpoint.

The Great Lakes Environmental Research Laboratory (GLERL) was established to develop environmental information that is useful to decision-makers impacting the Great Lakes region. The program is multidisciplinary in scope, ensuring the best possible use of the region's resources.

The Office of Sea Grant awards grants for research, development, education, training, and advisory services in all fields related to the development and use of marine resources and the marine environment.

The Office of Ocean Engineering has a comprehensive ocean engineering program that provides for the advancement of technology to develop oceanographic instruments and systems for measurements required in both national and NOAA ocean programs. It includes the development and advancement of engineering capabilities and technologies necessary to support NOAA activities in ocean and coastal zone management, climate research and monitoring, and environmental protection.

The Long-Term Effects program assesses the possible long-range effects of ocean pollution and other human-induced stresses on the marine ecosystem. The major thrust of the program is to identify and, where necessary, recommend corrective action with respect to potentially serious problems in the oceans before they reach a crisis stage or become uncontrollable.

Three other DOC components conduct ocean-pollution-related activities, but no funding was reported for FY78. These are the Maritime Administraion (MarAd), which carries out work under the Federal Water Pollution Control Act of 1972 as part of its responsibilities for commercial vessel operation and pollution abatement; the National Bureau of Standards, which is responsible for establishing measurement standards and related analytical methodology, and the National Technical Information Service (NTIS) which was created by the Congress in 1950 (Title 15, U.S.C. 1151-1157) as a clearing house for U.S. and foreign government-sponsored technical reports as well as other analyses prepared by and for national and local government agencies.

C. Department of Defense (DOD)
(projects 229 - 257)

Research funded by the Department of Defense (DOD) amounted to $8,802,000 in FY 1978. This is expected to decrease to $6,565,000 by FY 1980. The DOD budget is summarized below.

	FY78	FY79	FY80
	Thousand dollars		
Navy	6,437	5,209	4,478
Army Corps of Engineers	2,365	2,112	2,087
Total:	8,802	7,321	6,565

DOD ocean pollution research, development, and monitoring activities are primarily those of the Department of the Navy and the Army Corps of Engineers. Most U.S. Navy environmental research is in response to its special operational needs and environmental quality standards established by other regulatory agencies. It relates to problems of disposal of sewage and solid waste, polluting effects of antifouling technology, oil/water separator systems, ballast wastewaters, water monitoring for ordnance compounds, and toxic waste reduction and treatment. The Army Corps of Engineers has a major national role in civil works programs and additional specific responsibilities for waterways management. It studies effects of waste disposal at open-water sites, effects of dredging, use of dredged material, habitat development, assessment of marsh and estuarine environments, prediction and control of erosion and sedimentation, dynamics of benthic populations, stability of beaches and shores, and the interaction of environmental and socioeconomic forces affecting coastal development.

D. Department of Energy (DOE)

(projects 258 - 324)

In FY 1978, DOE spent $15.7 million on ocean pollution research, development, and monitoring, nearly 10 percent of the total Federal Program. This funding level is expected to remain approximately level through FY 1980. The DOE budget for FY 1978-80 is summarized below:

	FY78	FY79	FY80
	Thousand dollars		
Regional Programs	6,652	4,926	4,782
Strategic Petroleum Reserve Office (SPRO)	4,513	6,726	4,500
Ocean Thermal Energy Conversion (OTEC)	1,406	2,094	2,815
Other Programs	3,099	3,130	3,130
Total	15,670	16,876	15,227

DOE was established in 1977 from the former Energy Research and Development Administration (ERDA) and several other government entities. Its mandates relate to development and use of energy sources and assessment of the effects of energy technologies, including nuclear power via a mandate passed to ERDA in 1975 from the former Atomic Energy Commission (AEC). Programs involving marine pollution include: administration of the Strategic Petroleum Reserve within restrictions of the National Environmental Policy Act (NEPA) of 1969, particularly with regard to disposal of brines in the Gulf Coast regions of Louisiana and Texas; development of marine-related energy conversion technologies such as ocean thermal energy conversion (OTEC), and systems to use the energy of waves, tides, currents, and salinity gradients; and management of R&D (by the Office of Health and Environmental Research) on the environmental effects of energy-related pollutants including their release, transport, and fate in the coastal zone, pathways and fates from different sources into physical and biological systems, and the resilience of biological systems to disturbance by energy activities. Research work is conducted by university contractors and within DOE facilities. Regional ocean areas under study include the Northwest Atlantic by the Brookhaven National Laboratory, South Atlantic Bight by Skidaway Institute of Oceanography, California coastal areas by Scripps Institution of Oceanography, and the Pacific Northwest coast by University of Washington. Research topics include movement of trace metals and radionuclides in rivers, estuaries, and coastal waters, resulting concentrations in marine life, and effects of oil spills and release of heated water.

E. Environmental Protection Agency (EPA)
(projects 325-567)

The second largest portion of the Federal Program is accounted for by EPA, which funded 21 percent of the total fiscal year 1978 program. EPA's FY 1978 budget was $34,989,000 and is expected to be $40,047,000 by FY 1980. The EPA budget for FY 1978-80 is summarized below.

	FY78	FY79	FY80
	Thousand dollars		
Health Effects (HERL/Cincinnati)	$ 619	$ 676	$ 550
Pollutant Transport (ERL/Athens)	6	6	0
Oil and Hazardous Materials Prevention and Cleanup Research (IERL/Cincinnati)	3,058	2,334	2,330
Great Lakes (ERL/Duluth)	3,722	3,766	3,689
Marine Ecology (ERL/Corvallis)	1,666	1,422	1,475
Marine Ecology (ERL/Gulf Breeze)	5,300	6,987	10,089
Marine Ecology (ERL/Narragansett)	4,577	4,376	5,200
Chesapeake Bay Studies	5,353	4,900	4,900
EPA Energy/Environment Interagency Program			
NOAA/DOC	2,195	2,315	2,950
NIEHS/HEW	180	180	250
FWS/DOI	900	900	650
NBS/DOC	100	100	-
DOE	240	242	-
Great Lakes National Program	3,728	3,728	3,200
National Water Quality Monitoring Programs	1,300	1,300	1,300
Evaluation of Radioactive Waste Dumpsites	545	830	900
Ocean Dumpsite Evaluation Program	1,500	1,500	1,700
DOE Transfer to EPA	-	864	864
TOTAL	34,989	36,426	40,047

NOTE: Budget figures given for laboratories (ERL's) represent the total laboratory budget assignable to marine research and includes overhead, support services, etc., that are not necessarily reflected in reported individual project costs.

The Environmental Protection Agency (EPA) involvement in ocean use policy and management derives from the Federal Water Pollution Control Act as amended by the Clean Water Act, the Marine Protection, Research, and Sanctuaries Act, the National Environmental Policy Act, the Rivers and Harbors Act, and U.S. legislation implementing international treaties and agreements. EPA uses a variety of regulatory strategies to implement these mandates including water quality criteria, Federal discharge criteria, guidelines for private and governmental ocean use activities, and permits for certain activities, such as point-source waste discharges.

EPA regulations are prepared by program offices and reviewed by an Agency Steering Committee composed of all program offices: Office of Water and Hazardous Materials, Office of Toxic Substances, Office of Enforcement, Office of General Counsel, and Office of Research and legality, enforceability, and consequences with respect to economic policy. Regulatory activities include classifying compounds or materials as hazardous substances, which, when spilled or discharged into marine waters, require specific cleanup actions, and can result in penalties on the discharger.

EPA permit activities are concerned with coastal development and recreation, especially the siting of powerplants and refineries, dredging and filling activities, and recreational water quality. EPA-issued permits can stipulate special requirements, such as review of waste treatment plans and schedules and monitoring at disposal sites.

Waste disposal activities are a primary responsibility of EPA. They include ocean dumping, incineration at sea, ocean outfalls, and riverine pollution. Main types of waste are sewage sludge and other municipal waste, industrial waste, radioactive waste, atmospheric and land nonpoint-source waste, and dredged material.

EPA shares some regulatory responsibilities with other Federal agencies such as the Corps of Engineers, which issues permits for disposal of dredged materials in navigable waters in accordance with EPA-prepared guidelines. It also acts in an advisory capacity to BLM relative to leasing arrangements on the outer continental shelf. An operational function within EPA's regulatory responsibility is to review permhts and to advise and assist States and municipalities as they establish and maintain programs of coastal and marine management. Through such functions as the Municipal Construction Grants Program, EPA can influence specific activities, such as the degree of treatment required for municipal sewage discharged via outfalls.

Enforcement responsibilities generally are left to the States. Federal intervention usually occurs only when the States fail to enforce, when they request assistance, or when a problem has implications that cross State boundaries. EPA maintains enforcement officers in its 10 Regional Offices, but some enforcement actions are handled by the Headquarters enforcement component.

EPA's R&D program addresses all major ocean use activities wiuhin EPA's purview. It provides the scientific basis for EPA regulatory and enforcement processes through (1) information used to develop and update criteria and guidelines and establish policy relating to the environment, and (2) a cadre of resident experts who participate in enforcement proceedings and rulemaking hearings to which EPA is party.

F. Department of Health, Education, and Welfare (HEW)
(projects 568 - 589)

The HEW budget for FY 1978 was $3,898,000; this is expected to remain about level through FY 1980. The FY 78-80 budget is summarized below.

	FY78	FY79	FY80
	Thousand dollars		
Food and Drug Administration	2,620	2,585	2,570
National Institutes of Health	1,278	1,148	1,013
Total	3,898	3,733	3,583

In HEW two components of the Public Health Service -- the National Institutes of Health (NIH) and the Food and Drug Administration (FDA) -- conduct and support research and manage programs relating to ocean pollutants and their effects on human health. NIH, with responsibilties for prevention and treatment of disease and promotion and protection of human health, makes studies through its Institute of Environmental Health Sciences on biological effects of environmental contaminants. FDA, which is responsible for the purity and quality of foods shipped in interstate commerce, inspects canned and processed seafoods and administers the National Shellfish Sanitation Program (NSSP) -- a Federal-State-industry program for sanitary control of the shellfish industry. Only oysters, clams, and mussels are included in this program, which FDA coordinates at the Federal level without regulatory, licensing, or enforcement authority. State agencies manage program operations and monitor, classify, and control about 14.1 million acres of shellfish waters in State territorial waters out to 3 miles offshore. About 600 square miles of sludge dumping sites off New York Harbor and Delaware Bay are monitored in cooperation with EPA, NOAA, and Coast Guard. Research on contaminants includes viral and bacteriological microorganisms, toxic metals, radionuclides, and naturally occurring marine toxins.

G. Department of the Interior (DOI)
(projects 590 - 897)

The Department of the Interior accounted for 34 percent of the Federal budget with $56,392,000 spent in FY 1978. This is expected to increase to $76,519,000 by FY 1980. The DOI budget for FY 1978-80 is summarized below.

Within the Department of the Interior (DOI) three agencies carry out ocean pollution research, development, and monitoring activities -- the

Bureau of Land Management (Division of Offshore Resources), U.S. Geological Survey, and U.S. Fish and Wildlife Service.

	FY 1978	FY 1979	FY 1980
	Thousand dollars		
Bureau of Land Management	37,656	30,085*	51,185
Geological Survey	16,107	19,772	23,115
Fish and Wildlife Service	2,629	2,700	2,219
TOTAL	56,392	52,557	76,519

*An additional $7.7 million supplemental funds have been approved.

Statutory authorities for DOI activities include the Outer Continental Shelf (OCS) Lands Act of 1953 (which established Federal jurisdiction over submerged lands of the continental shelf seaward of State boundaries), the OCS Lands Act Amendments of 1978, and such other authorities requiring mandatory compliance as the National Environmental Policy Act (NEPA) of 1969, Coastal Zone Management Act of 1972, Federal Water Pollution Control Act of 1972, Marine Mammal Protection Act of 1972, Endangered Species Act of 1973 and Marine Protection, Research, and Sanctuaries Act of 1973.

The Bureau of Land Management (BLM) is the administrative agency for leasing submerged Federal lands. In this role, BLM is directed tn provide for orderly development of OCS oil and gas resources to meet the energy needs of the Nation, and to provide for protection of the environment concomitant with development of mineral resources, which also include hard minerals such as sand and gravel. BLM-funded research accounted for 67 percent of the FY 1978 DOI budget of $56,392,000. Protection of the marine and coastal environment is a direct outgrowth of NEPA. Thd OCS Lands Act Amendments of 1978 imposed the requirement for Environmental Impact Statements and led to BLM's Environmental Studies Program, which provides information needed to predict, assess, and manage any Outer Continental Shelf and nearshore development that might affect the human, marine, and coastal environments.

The U.S. Geological Survey (USGS) serves Federal, State, and local governments, and the public, by collecting, analyzing, and publishing detailed information about the Nation's energy, mineral, land, and water resources. Although created in 1879 to study geologic structure and mineral resources, Congressional and Executive directives have expanded the Survey's authorities and responsibilities to include topographic mapping, chemical and physical research, stream gauging and water supply assessments, supervision of mineral exploration and development activities on Federal and Indian lands, engineering supervision of waterpower permits, and administration of a mineral exploration program. Ocean-pollution related research and development and monitoring programs are carried out by the Geologic Division, Water Resources Division, and Conservation Division.

The Geologic Division conducts geologic research and investigation programs as a background for many economic and social decisions, and to better understand natural processes that influence our lives. Geologic programs involve four main fields of activity; land resource surveys, mineral resource surveys, energy resource surveys, and offshore geologic surveys. Offshore surveys assess the potential mineral and energy resources of the continental margins and include studies to determine the geological and environmental hazards that may affect offshore development.

The Water Resources Division of USGS has the principal responsibility at the Federal level for appraising water resources, for providing hydrologic data on surface and ground water, and for satisfying water information needs at all levels of government. The Division's Federal-State Cooperative Program includes 597 State and local agencies that provide financial support and services, with matching funds appropriated by the Congress. The Division keeps the Federal Government aware of State and local problems and contributes to a valuable exchange of information through a network of offices in all 50 States and Puerto Rico and Guam. In 1964, USGS was designated the lead agency for coordinating water data acquisition activities of all Federal agencies, including acquisition of information on streams, lakes, reservoirs, estuaries, and ground water. This activity minimized duplication among Federal agencies and has improved the data base and its accessibility. A growing component of the U.S.G.S. program is the monitoring of coastal rivers and aquifers which provides information on the chemical and biological contributions to estauries and the oceans.

The Conservation Division performs regulatory functions under laws governing leasing, mining, and use of mineral and water resources on Federal and Indian lands. It supervises operations associated with the exploration, development, and production of minerals from leased Federal, Indian, and Outer Continental Shelf lands, including the collection of royalties and certain rentals that result from mineral production. The hydrocarbon resources of specific tracts on the OCS proposed for lease are evaluated to ensure that the Government receives fair market value for leasing and to ensure that only those tracts are offered for lease whose development can be accomplished in an environmentally acceptable manner. This includes tract-specific and site-specific identification and evaluation of geologic hazards that may affect offshore development, including the siting of drilling rigs and production platforms. Regulation of OCS oil and gas activities is a continuing process requiring constant review of program components and objectives, and can become more complex as production activities are undertaken in hostile new environments.

The U.S. Fish and Wildlife Service (FWS) is involved in environmental research and operational activities under mandates derived from tie National Environmental Policy Act (NEPA), the Fish and Wildlife Coordination Act, and other Federal legislation. Three interrelated FWS programs deal with environmental issues. The Land and Water Resource Development Program, managed through the Division of Ecological Services, provides ecological input to field-level planning related to specific river basin studies and projects to be constructed by Federal agencies, assisted with Federal funds, or constructed by non-Federal entities under a Federal license or permit. The Ecological Services Division assures FWS compliance with NEPA.

The Environmental Contaminant Evaluation Program conducts research, monitors contaminants, and makes field appraisals to ascertain the effects of pesticides, industrial chemicals, heavy metals, and pollutants on fish, wildlife, and their habitats. It manages and reviews all FWS uses of pesticides and is directed toward determining relations between the application of pesticides and damage to fish and wildlife.

The Biological Services Program was created to assess impacts of new land and water development more rapidly and to keep abreast of projects related to energy, impairment of wetlands, and proposed changes in land and water use. This program is the coordinating link between FWS field operations and research and management activities. It supports research and studies on critical environmental problems, prepares guidelines and manuals, and provides technical assistance to help FWS participate in the decisionmaking process on major resource development projects. Through the program FWS advises BLM and the USGS on ecological problems associated with development of oil and gas resources on the outer continental shelf, including the least damaging ways to bring oil and gas ashore and the best locations for shore-based facilities. FWS is identifying critical zones that should not be developed and is analyzing alternatives to preserve critical areas while projects are in an early planning stage and options are still available.

H. National Aeronautics and Space Administration (NASA)
(projects 898-901)

NASA spent $1,750,000 on ocean pollution development work in FY 1978. The funding level is expected to be $531,000 in FY 1979 and $1,650,000 in FY 1980.

NASA was established by the National Aeronautics and Space Act of 1958 (Public Law 85-568). The Act specifies that activities in sqace are to contribute to the most effective use of the U.S. scientific and engineering resources -- through close cooperation with interested Federal agencies and agreements between NASA and any State, political subdivision, public, or private agency. Although NASA does not have direct statutory responsibility for any monitoring activity, the Congress has directed other agencies to seek NASA's assistance and has directed emphasis toward NASA projects through specific actions. The Federal Water Pollution Control Act of 1972 (Public Law 92-500) charges the Administrator of EPA with using the resources of NASA and other agencies to establish, equip, and maintain a water-quality surveillance system. NASA authorization and appropriations actions for 1978 identify support for the application of space technology to detecting and monitoring oil spills in U.S. waters and to controlling other pollution problems.

NASA's marine pollution activities include analysis and interpretation of remotely sensed data relating to Great Lakes water quality, investigations of ocean dumping and environmental baseline monitoring in the coastal zone, study of red tide and coastal zone water quality characteristics, and use of electrochemical methods to detect and monitor coliform bacteria levels in coastal waters. Much microwave sensor work relates to methods and systems to remotely observe and model oceanic phenomena.

I. National Science Foundation (NSF)
(projects 902-915)

NSF spent $15,134,000 of its total marine science budget in FY 1978 on pollution-related projects. Future levels are difficult to predict because most projects are initiated by unsolicited proposals from the academic community less than one year in advance of funding approval. However, to support ongoing projects and anticipated renewal of current projects about $15,006,000 will be expended in FY-79 and $13,655,000 in FY-80.

NSF supports, but does not itself perform, research on basic oceanographic questions relevant to ocean pollution problems through its division of Ocean Science and the International Decade of Ocean Exploration (IDOE) program. Most research is conducted at academic institutions, but industrial-academic projects are possible. Many NSF-sponsored studies are of value in predicting the movement and fate of pollutants and assessing the response of individual species and biological communities to stresses that could lead to irreparable damage. The IDOE program of the 1970s supported international research teams and globally planned and coordinated studies. IDOE's Environmental Quality Program, which was designed to provide information on the quality of the marine environment and to assess and predict human impact on the ocean, included four major investigations, Geochemical Ocean Sections Study (GEOSECS), Pollutant Transfer Program, Biological Effects Program, and Controlled Ecosystem Pollution Experiment (CEPEX).

J. Nuclear Regulatory Commission (NRC)
(projects 916-926)

The FY 1978 budget for ocean pollution research, development, and monitoring for NRC was $1,245,000. This funding level is expected to decrease to $955,000 in FY 1979 and $965,000 in FY 1980.

NRC is directed by the Energy Reorganization Act of 1974 to perform research to confirm specific problems encountered during the nuclear regulatory process. NRC performs little direct research or monitoring. It stimulates monitoring programs by applicants for licenses and by those who are granted licenses. These programs include baseline studies made before submitting applications, preoperational studies that focus on problems identified during baseline studies, and postoperational monitoring to assure compliance with license conditions. Baseline studies provide information needed by NRC to prepare Safety Analysis Reports and Environmental Impact Statements. Operational monitoring programs by licensees focus on potential radionuclide pathways to humans. NRC provides guidelines on radiological environmental monitoring for use in routine operation of nuclear facilities. These guidelines include instructions for measuring, evaluating, and reporting radioactivity levels in solid wastes and releases of radioactive material in liquid and gaseous effluents from light-water cooled nuclear powerplants. NRC's Office of Inspection and Enforcement contracts with 16 States to perform "spot check" monitoring for quality assurance and maintains an in-house capability for radiological monitoring in response to specific incidents and as part of the NRC emergency preparedness program. In January 1979 monitoring programs were being conducted at 23 sites of proposed or operating nuclear facilities in the coastal zone.

K. Department of Transportation (DOT)
(projects 927 - 969)

The U.S. Coast Guard and Materials Transportation Bureau fund DOT's contribution to the Federal Program for ocean pollution research, development, and monitoring. In FY 1978, the DOT budget was $8,803,000 and is expected to be about $6,000,000 in FY 1980. The FY 1978-80 budget is summarized below:

	FY78	FY79	FY80
	Thousand dollars		
Coast Guard			
Marine Environmental Protection	8,405	7,923	5,991
Port Safety	120	0	0
Commercial Vessel Safety	278	525	0
Materials Transportation Bureau	0	0	0
Total:	8,803	8,448	5,991

Within DOT, the Coast Guard (USCG) has primary responsibility for the safe movement of vessels and for the quality of the marine environment as it is affected by transport of oil and hazardous chemicals within U.S. port areas and waterways. Statutory authorities for these responsibilities derive in part from the Ports and Waterways Safety Act, Port and Tanker Safety Act, Tank Vessel Act, Federal Water Pollution Control Act, and Dangerous Cargo Act. To accomplish these tasks, USCG regulates and enforces minimum standards for design, construction, alteration, repair, maintenance, and operation of vessels; controls or supervises waterfront operations and vessel traffic; and regulates the handling, storage, and carriage aboard vessels of all dangerous and hazardous materials, such as explosives, flammable liquids and solids, oxidizing materials, corrosive liquids, compressed gases, and poisonous articles. Under the Federal Water Pollution Control Act, USCG also has responsibility for preventing pollution from oil and hazardous substances from vessels and transportation-related facilities and for mitigating discharges of oil and hazardous substances from any source in the coastal zone, ports, harbors, Great Lakes, or Outer Continental Shelf. USCG is also responsible for mitigating pollution that can affect natural resources belonging to, appertaining to, or under the exclusive management authority of the United States, including resources under the Fishery Conservation and Management Act of 1976. Further, USCG works to improve safety and prevent pollution at sea in its role as the coordinating U.S. representative to the Inter-Governmental Maritime Consultative Organization (IMCO) of the United Nations.

An active research, development, monitoring program is carried out to support USCG's programs for marine environmental protection, commercial vessel safety, and port safety. Much of the work in the latter two program areas is performed primarily to enhance safety and protect life and property. Although almost all these efforts reduce the potential for pollution, this plan includes only those that are specifically intended to detect or reduce pollution. Also not included are operating programs such as the facility and vessel inspection programs and pollution surveillance programs.

Most research, development, and monitoring efforts in support of the above programs are performed within the commercial sector. However, these missions are also supported through the USCG Research and Development Center, Shipboard Fire and Safety Testing Facility, and DOT Transportation Systems Center.

CATALOG OF FEDERAL PROGRAMS

This catalog provides a listing of all federally funded ocean pollution research, development, and monitoring programs underway or planned for fiscal years 1978 through 1980. It will be revised at least biennially as part of the planning process required by the National Ocean Pollution Research, Development and Monitoring Planning Act of 1978, Public Law 95-273.

Several limitations have been placed on the scope of activities reported in this initial catalog. Public Law 95-273 limits the scope of ocean pollution, by definition, to that resulting from activities occurring in the marine environment. Consequently, projects related to pollutants entering the marine environment from upstream and terrestrial sources have not been included. Much of the research and monitoring currently underway to assess inland sources contributing to ocean pollution are not reported here. Additionally, only programs which have a primary focus on ocean pollution problems are reported. Industrial and regulatory efforts such as development of improved waste treatment processes or assessment of stock levels for fishery management programs, which may yield information of great utility to ocean pollution programs as a secondary benefit, have not been included. The need for limitations such as these will be reconsidered during preparation of subsequent editions of the catalog.

Projects are listed by the department or agency that receives congressionally appropriated funding. Where necessary, transfer of funds between agencies for management or contractual services is indicated. Each project entry provides the name of an individual who can be contacted for further information on project details, and an indication of planned or obligated funding for fiscal years 1978, 1979, and 1980. Published figures for FY 1980 are estimates only and are subject to adjustment. In some cases, planned funding for fiscal year 1980 has been deleted upon request of agencies where contract monies have not yet been obligated and publication of programmed funding information would interfere with Federal procurement policies.

In some cases symbols appear in place of dollar amounts in the funding entries. Their meanings are as follows:

† - no project during this fiscal year
* - project is continuing, but no new funds are provided this fiscal year
(blank) - funds not disclosed by agency request

Appendix A provides a cross referencing index for reported projects--catagorized by pollutants under study, geographic region under consideration, and cause of pollution; it also indicates those projects related to controlling or minimizing pollution. Appendix B provides a listing of common acronyms used throughout the document.

DEPARTMENT OF AGRICULTURE

Funding Summary
(in thousands of dollars)

FY 78	FY 79*	FY 80*
$114.9	$114.9*	$114.9*

* Total funding in FY 1979 and 1980 is estimated to be similar to that in FY 1978, however, funding levels are not projected for individual projects.

1. Value of Tidal Marshes in Relation to Estuarine Ecosystems, and Evaluation of Freshwater Wetlands

Stabilize dredge spoil & study animal & plant colonization. Study animal communities of St. Marks River estuary Fla. Estimate value of tidal marshes in Wakulla Co. Fla. Investigate parameters important for growth of Juncus. Characterize merits of selected freshwater wetland. Compare soil properties of marshes & upland.

C.L. Coultas; Florida Agric & Mech Univ. FY 78; $40.0K
FY 78; $40K FY 79; † FY 80; †

2. An Evaluation of Widely Used Herbicides on Aquatic Plants, Fish and Fish Food Organisms

Assess the influence of total alkalinity, PH and temperature of the water on the effectiveness of several widely used herbicides. Test the effect of weed control by chemical means on fish-food organisms. Evaluate fertilization as a method of controlling higher aquatic plants.

C.D. McNabb; Michigan State Univ.
FY 78; $2.4K FY 79; † FY 80; †

3. Interactions of Chemical Pollutants and Microorganisms in the New Jersey Coastal Environment

Identify and assess specific pollution hazards that will suggest remedies or cleanup procedure. The interaction of various chemical pollutants such as petroleum hydrocarbons, polychlorinated biophenyls, persistent pesticide residues, heavy metals, especially mercury, and of pollutants that give rise to eutrophication estuarine microorganisms will be investigated in both laboratory and field experiments.

R. Bartha; Rutgers Univ.
FY 78; $6.4K FY 79; † FY 80; †

DEPARTMENT OF AGRICULTURE

4. Transport of Chlorinated Hydrocarbons from Continental Sources to Ocean

Determine levels of chlorinated hydrocarbons (CHC) in continental and marine air and in sea water. Determine whether CHC exist in the atmosphere as vapors or absorbed onto particles. Determine whether they exist in sea water as dissolved or particulate species. Determine rates of removal and mechanisms for removal of CHC from the atmosphere and the mixed layer of ocean.

C.E. Olney; Univ. of Rhode Island

FY 78; $21.1K	FY 79; †	FY 80; †

5. The Quality of Seafood Consumed by the People of South Carolina

Determine mercury of sea and freshwater fish consumed by the people of South Carolina, determine the effect of fish species on the accumulation and distribution of mercury in their tissues, and compare levels of mercury found by geographic location and relate to environmental factors.

A. Koli; South Carolina State Coll.

FY 78; $21.9K	FY 79; †	FY 80; †

6. Pesticide Residues in Agricultural Commodities and Environments

Devise new or improved sampling, extraction, clean-up and analytical techniques to augment and facilitate existing residue analytical programs. Study the movement, ultimate fate and rates of disappearance of pesticide residues from agricultural commodities and environments. The objectives above will include carbamates, organic phosphates and new pesticide introductions; derivatization of pesticides for greater sensitivities; regional residue problems; pesticide intermediates, breakdown products, and studies on areas where pesticides have been used for long periods.

R.W. Young; Virginia Poly Inst

FY 78; $23.1K	FY 79; †	FY 80; †

7. Unobligated Funds

These funds are planned to be used for ocean pollution research, development and monitoring, but have not yet been allocated to specific projects.

FY 78; †	FY 79; †	FY 80; $30K

DEPARTMENT OF COMMMERCE

Funding Summary

(in thousands of dollars)

	FY 78	FY 79	FY 80
National Oceanic & Atmospheric Administration			
Marine Ecosystems Analysis (MESA)	$6,154	$7,438	$5,311
Ocean Dumping Program	$1,900	$2,200	$2,200
Fisheries Habitat Investigation Program	$3,522	$3,496	$4,713
Fisheries Microconstituent Program	$ 495	$1,025	$1,206
Great Lakes Environmental Program	$2,512	$2,512	$2,512
Sea Grant Program	$2,358	$2,712	$2,712
Ocean Engineering Program	$ 398	$ 398	$ 398
Other Programs	$ 199	$ 199	$ 199
Long Term Effects Program	$ -	$2,785	$4,790
NOAA Totals	$17,538	$22,765	$24,040
Maritime Administration	*	†	†
National Bureau of Standards	†	†	†
Department Totals	$17,538	$22,765	$24,040

National Oceanic and Atmospheric Administration (NOAA)

MESA Program

8. Inner Shelf Sediment Transport Experiment (INSTEP)

The objective of the INSTEP program is to resolve the patterns (rates and directions) of fine sediment deposition, transport and erosion on the inner continental shelf (specifically off Long Island and in the inner Bight), and to assess the extent to which the fine sediment transport system bears contaminants from human activities. Results are applicable to problems associated with water.

D. Swift; ERL/AOML
FY 78; $389.2K FY 79; $234.9K FY 80;

MESA Program (continued)

9. MESA Program Office

The MESA program office is responsible for overall program development, planning, execution and evaluation of the MESA Projects, which includes: MESA New York Bight; MESA Puget Sound; DOMES; Hazardous Materials Response; Prince William Sound.

J.F. Hebard; NOAA

FY 78; $849.3K	FY 79;	FY 80;

10. Marine Ecosystems Analysis (MESA) New York Bight Project

Project goal is to identify and describe the major existing ecological system, processes, stresses, and responses operating in the Bight and define their relationships and rates of change. The Project Office is responsible for the management of the Project.

R.L. Swanson; MESA, Rockville, MD

FY 78; $725K	FY 79; $735K	FY 80;

11. Water Column Characterization Program (Physical Oceanography)

A continuing program to describe the spatial distribution of density structure and select physical variables in Bight waters (including salinity, temperature, transmissivity, pH, oxygen, and nutrients) during key portions of the year.

R.Starr; ERL/AOML

FY 78; $95.5K	FY 79; $64.9K	FY 80;

12. Moored Current Meter Program

A continuing program to improve the general description of Bight circulation and its temporal and spatial variability. Includes planning field programs executed by MESA operation's and ship's personnel and the scientific analysis of resulting data.

D.V. Hansen; ERL/AOML

FY 78; $128K	FY 79; $50K	FY 80;

13. Initial Processing of Aanderaa Current Meter Data

A continuing program in support of the moored current meter and tidal current analysis programs. Provides initial processing and editing for all MESA current meter data and produces data documentation reports.

W. Hull; NOS

FY 78; $50K	FY 79; $45.5K	FY 80;

MESA Program (continued)

14. Meteorological Data Buoy Support

A continuing effort to maintain meteorological data buoys in the Middle Atlantic Bight in support of Project research.

R. Ericksen; NDBO, Bay St. Louis, MS
FY 78; $28K FY 79; $26.8K FY 80;

15. Benthic Invertebrate Distribution and Abundance

This effort will analyze the taxonomic composition of 26 macrofaunal samples obtained from the Christiaensen Basin and Upper Hudson Shelf Valley by a 1974 MESA sponsored cruise. Additional samples will augment existing data on the Bights macrofauna as required.

J.B. Pearce; NMFS, NEFC, Sandy Hook, NJ
FY 78; $11K FY 79; FY 80;

16. Statistical Validation of Benthic Data Set

Work to be undertaken will examine the adequacy of existing data sets (collected by MESA-sponsored as well as other investigators) for evaluating the relationship between pollution and the distribution of benthic organisms and communities.

R.L. Swanson; OMPA, Rockville, MD
FY 78; $74K FY 79; $15.8K FY 80;

17. Sampling for Analysis of Organic Contaminants of Fish, Shellfish and Plankton

The objective of this effort is to provide samples of organisms for the determination of selected synthetic organic compounds.

J.B. Pearce; NMFS, NEFC, Milford, CT
FY 78; $92K FY 79; $12K FY 80;

18. Tidal Current Analysis

A continuing program to study the tidal characteristic modes of water motion in the New York Bight.

W. Hull; NOS, Rockville, MD
FY 78; $50K FY 79; $63.1K FY 80;

19. Development and Applications of Diagnostic Circulation Models

A continuing effort to develop, test and evaluate several steady and time dependent diagnostic circulation models for Bight applications

MESA Program (continued)

in support of Project multidisciplinary and synthesis studies.

D. Hansen; ERL, AOML
FY 78; $101.9K FY 79; $75K FY 80;

20. Phytoplankton Release and Uptake of Dissolved Organic Carbon

The objectives of this project are to: 1. Examine the rates of dissolved organic carbon release by natural populations of phytoplankton in the Bight apex. 2. Measure the rates of decomposition of organic matter by measuring rates of oxygen consumption in the water column.

J.P. Thomas; NMFS, NEFC, Sandy Hook, NJ
FY 78; $30K FY 79; $32.4K FY 80;

21. Roles of Bacteria in Carbon, Oxygen and Nitrogen Cycling

The objectives of this work are to: 1. Define the distribution of heterotrophic bacteria in the upper water column, in resuspended sediments obtained from the bottom meter of the water column, and in sediment subsections. 2. Estimate changes in heterotrophic potential in Lower New York Bay and the Inner Bight.

R.L. Swanson; OMPA, Rockville, MD
FY 78; $86K FY 79; $60.6K FY 80;

22. Environmentally-Induced Mutagenesis in Marine Fishes

The objective of this study is to determine the extent of mutagenic effects upon fish eggs in the neuston by natural variations.

A.C. Longwell; NMFS, NEFC, Oxford, MD
FY 78; $95K FY 79; $30K FY 80;

23. Fish and Shellfish Diseases in Degraded Marine Environments

The major objectives of this work unit are to (1) document the significance of "fin rot" disease in Bight fishes, (2) determine the association between fin rot disease and degraded areas of the Apex, (3) contribute to an understanding of the causes of fin rot disease, (4) document the significance and causes of two important shellfish diseases.

R.A. Murchelano; NMFS, NEFC, Oxford, MD
FY 78; $50K FY 79; $35K FY 80;

Mesa Program (continued)

24. MESA Monographs

The project is intended to summarize and integrate available information and data on the Bight for the public, decision-makers and their technical advisers, users of the Bight, and scientists.

D.F. Squires; NY Sea Grant, SUNY, Albany, NY
FY 78; $11K FY 79; † FY 80;

25. Ecological Effects of Environmental Stress

The objectives of this work unit are to (1) integrate results obtained from independent and MESA-sponsored research on pollutant-related stresssed on New York Bight ecosystems, (2) examine the long-term effects of continued pollution in the Bight, (public health effects excluded) (3) provide a logical framework for examining future pollution management strategies, and (4) make these findings available to the general public as well as to scientific and policy-making groups.

D.F. Squires; NY Sea Grant, SUNY, Albany, NY
FY 78; $40K FY 79; $91.4K FY 80;

26. Modeling of Carbon-Oxygen-Nitrogen Cycling

Project aims are: 1. To evaluate the casual mechanisms influencing dissolved oxygen levels in the New York Bight; 2. To provide a quantitive analysis of the spatial and temporal interactions of those ecosystem components and features that influence dissolved oxygen levels.

R.L. Swanson; OMPA, Rockville, MD
FY 78; $150K FY 79; $125K FY 80;

27. Information Transfer

In interaction/cooperation with Sea Grant, information on the NY Bight is disseminated to the public, environmental groups, fishing organizations, schools, etc.

D.F. Squires; NY Sea Grant, SUNY, Albany, NY
FY 78; $24K FY 79; $60.5K FY 80;

28. Long-Term Environmental Monitoring

The objective of this effort is to design, and cumulatively test and evaluate (through FY 1980) the major elements of a program to

Mesa Program (continued)

monitor the quality of the New York Bight ecosystem.

R.L. Swanson; OMPA, Rockville, MD
FY 78; $75K FY 79; $71.9K FY 80;

29. Calibration of MESA Project Instrumentation

A service arrangement whereby NOS/AMC provides for the calibration of all major Project scientific instrumentation through mobile calibration facility located at the Project's Floyd Bennet Field Operations Base.

A. Pardue; NOS, Atlantic Marine Center
FY 78; $65K FY 79; $62.5K FY 80;

30. Plankton Dynamics and Nutrient Cycling in the Inner Bight

The objective of the proposed work is to document the time-course of netplankton and nanoplankton responses to environmental perturbation as a means of understanding and modelling the environmental regulation of netplankton and nanoplankton productivity.

R.L. Swanson; OMPA, Rockville, MD
FY 78; $147K FY 79; $135.8K FY 80;

31. MESA Engineering Support

This effort is to develop hardware systems for the New York Bight Project.

D. Schmidt; NOS, Riverdale, MD
FY 78; $112K FY 79; † FY 80;

32. Organic Contaminants of Fish, Shellfish and Plankton

A wide variety of organisms will be scanned for a broad spectrum of organiuc contaminants. At a minimum, liver and muscle tissue (in fish) are to be analyzed. The aim of this work is to assure that no important class organic pollutant has been omitted from routine analyses.

W. Macleod; NMFS, NWAFC, Seattle, WA
FY 78; $58.7K FY 79; $50K FY 80; *

33. Sources and Environmental Concentrations of Heavy Metals in Surface Waters and Slicks

The aim of this project is to measure heavy metal concentrations in

MESA Program (continued)

surface waters and surface slicks in samples associated with measurements of genetic damage to Atlantic mackerel eggs.

G. Meaburn; NMFS, SEFC, Charleston, SC
FY 78; $14K FY 79; † FY 80; *

34. Engineering Support of MESA-NYPB

FY 1978 efforts of this project can be divided into four areas: 1. Project planning and coordination, 2. Documentation (four major reports on past and present efforts), 3. Shipboard laboratory shelters, and 4. Engineering support consultation (proposal review, market surveys, refurbishment/maintenance, field support).

C. Kearse; NOS, EDL, Riverdale, MD
FY 78; $70K FY 79; † FY 80;

35. Development of Bottom Concentration/Velocity (BCV) System (INSTEP Related

Development, test and evaluation of the BCV system specifically for use in the Inner Shelf Sediment Transport Experiment (INSTEP)

C. Kearse; NOS, EDL, Riverdale, MD
FY 78; $31K FY 79; † FY 80;

36. Sources and Environmental Concentrations of Heavy Metals

The aim is to measure existing heavy metal concentrations in all Bight ecosystem components and make supplementary measurements necessary to give a complete inventory of metal concentration.

J.B. Pearce; NMFS, NEFC, Milford, CT
FY 78; $11K FY 79; † FY 80;

37. The New York Bight Ecosystem--A Synthesis

The project is one of several efforts being sponsored by the NYPB to intergrate and interpret its findings on the impact of human activities on the ecosystem of the Bight. The Project's ultimate aim is to utilize the data obtained by its scientific studies for the formulation of enlightened policies on Bight management and resource utilization.

R.L. Swanson; OMPA, Rockville, MD
FY 78; $43K FY 79; $95K FY 80;

Mesa Program (continued)

38. Pollutants and Pathogens as Hazards to Man

The purpose of this synthesis project is to assess the environmental quality of organic and metallic contaminants in Bight waters.

R.L. Swanson; OMPA, Rockville, MD
FY 78; $74K FY 79; $94.9K FY 80;

39. Heavy Metal Concentrations in Fish and Shellfish

Published and other available information on heavy metal concentrations in fish and shellfish species of importance in the N.Y. Bight area will be compiled and evaluated.

H.I. Seagran; NMFS, SEFC, Charleston, SC.
FY 78; $10K FY 79; $70.7K FY 80;

40. Flux of Metals From Dredged Material Deposits

This effort is of two parts, using samples taken at the Bight Apex dredged material dump site: Part 1--The bulk sediment parameter (such as water content, bulk density, grain size, porosity composition) will be examined horizontally and vertically, using samples from vibracores.

R.L. Swanson; OMPA, Rockville, MD
FY 78; $84K FY 79; † FY 80;

41. Designation of Most Serious Chemical Contaminants

The purpose of the study is to identify the most serious contaminants of the New York Bight and document why they appear to be the most serious.

R.L. Swanson; OMPA, Rockville, MD
FY 78; 6K FY 79; † FY 80; *

42. Sources and Environmental Concentrations of Organic Compounds

Project focuses on obtaining a limited number of sediment and water samples from impacted and unimpacted areas and examining them for a broad range of organic compounds. This will provide a check to assure that no significant organic contaminants have been overlooked by the MESA surveys.

W. MacLeod; NMFS, Seattle, WA
FY 78; $73K FY 79; $42K FY 80;

Mesa Program (continued)

43. Water Column Characterization Program (Chemical Oceanography)

Describe the spatial distribution of nutrients dissolved oxygen and selected metals and organics in Bight waters during key portions of the year, and to analyze these in terms of possibly controlling physical parameters (salinity, temperature, density structure.) Develop a comprehensive data base for monitoring.

D.K. Atwood; ERL, AOML
FY 78; $97.1K FY 79; $63.2K FY 80;

44. Oil Spill Trajectory Model for Puget Sound, the Strait of Juan de Fuca, The San Juan Islands, and Southern Georgia Strait

The purpose of this study is to develop an operational oil spill trajectory model which can be used in two modes: (1) prespill - development of likely spill scenarios and resultant - real- time prediction of trajectory for cleanup deployment purposes.

J.A. Galt; ERL, PMEL
FY 78; $23.3K FY 79; † FY 80;

45. Compendium of Current Environmental Studies in Puget Sound and Northwest Estuarine Waters

The Compendium is a descriptive record of marine environmental research undertaken in the waters of Washington and British Columbia. Published annually, it is intended to provide a single source document for identification of research relevant to needs

H. Harris; MESA, Puget Sound
FY 78; $6K FY 79; $8K FY 80;

46. Physical Oceanography of the Puget Sound in Central Basin

To examine spatial and temporal variations in the surface wind and near-surface to deep current fields in the eastern Strait of Juan de Fuca.

H. Harris; MESA, Puget Sound
FY 78; $60K FY 79; † FY 80;

47. Strait of Juan de Fuca Synthesis Report

Provide up-to-date, comprehensive documentation on circulation in

Mesa Program (continued)

the Strait of Juan de Fuca.

G. Cannon; MESA, Puget Sound
FY 78; $51K FY 79; † FY 80;

48. Chemical Analytical Scan of Puget Sound Sediments

The chemical analytical scan of selected Puget Sound sediments will be used with other information to identify contaminants of special concern to the Puget Sound marine ecosystem.

W. Macleod; NMFS/NWAFC, Seattle, WA
FY 78; $24.5K FY 79; † FY 80;

49. Puget Sound Publication Series

Publication series is envisioned as a series of approximately 15 "monographs" which present state-of-the-art understanding of the marine environment in easily comprehended form. The series is patterned after the highly successful (and widely used) New York Bight Monograph Series.

H. Harris; MESA, Puget Sound
FY 78; $52.4K FY 79; $145.7K FY 80;

50. Evaluation of Water Quality in Hood Canal and Southern Puget Sound

To continue the annual Washington Department of Fisheries assessment of water quality in Hood Canal and southern Puget Sound. 2. (2nd year only) To investigate the causes of mortality of larval Pacific oysters in selected inlets of the southern Puget Sound basin, and specificaly to test the hypothesis that metabolites of Ceratium fusus play a significant role in this mortality.

H. Harris; MESA, Puget Sound
FY78; $17.8K FY 79; † FY 80;

51. Project Management, MESA Puget Sound Project

Three goals for the period of FY 79-1984: Goal A: Assess critical environmental problems in Puget Sound waters. Goal B: Determine the effects of critical environmenta stress within the Puget Sound ecological systems. Goal C: Identify and characterize the major marine components and processes of Puget Sound ecosystems which are

Mesa Program (continued)

involved in critical environmental problems.

H.S. Harris; MESA, Puget Sound
FY 78; $168.5K FY 79; $51K FY 80;

52. Feasibility Study for Acoustic Sampling of the Sediment Plume Generated by Deep Ocean Mining Operations

To evaluate feasibility of observing dynamic and biological effects of suspended sediment plume released at surface by mining vessel.

R.E. Burns; MESA, Puget Sound
FY 78; $17.6K FY 79; $192K FY 80;

53. Temporal and Spatial Distributions of Zooplankton Abundance in a Proposed Managanse Nodule Mining Region

To provide a quantitive evaluation of the interactions between macrozooplankton and suspended particulate matter discharged in the near surface waters during the mining activities.

R.E. Burns; DOMES, PMEL
FY 78; $76.9K FY 79; $98K FY 80;

54. Deep Ocean Mining Environmental Study - Chief Scientist

To provide overall scientific and technical program guidance for experimental design, data management, and data analysis. To take the lead in the synthesis of the results and in the preparation of interpretative reports of DOMES investigation.

R.E. Burns; DOMES, PMEL
FY 78; $97.6K FY 79; $192K FY 80;

55. Impact of a Prototype Manganese Nodule Mining Test on the Benthic Community

To provide, through means of site specific benthic population sampling, an assessment of impact of pilot test mining on the benthic population of a mine-site. The initial assessment is to be provided by comparing samples taken immediately before and immediately after a pilot mining test.

R.E. Burns; DOMES, PMEL
FY 78; $97K FY 79; $193K FY 80;

DEPARTMENT OF COMMERCE (NOAA)

Mesa Program (continued)

56. Participation in the Domes II Project

To provide sampling of surface ship discharge from aboard mining vessel. To provide shipboard and post-trip analyses of settling velocity spectrum of SPM in mining ship surface discharge.

R.E. Burns; DOMES, PMEL
FY 78; $14.6K FY 79; $5K FY 80;

57. Domes Project Management

Provide project management for NOAA's deep ocean mining environmental study (DOMES), includes labor, travel, equipment, supplies and logistics.

R. Burns; DOMES, PMEL
FY 78; $445K FY 79; $595K FY 80;

58. Study of Domes Particulate Plumes - Surface and Benthic

Determine physical characteristics, dynamics, interactions, and fate of the surface and benthic particulate plumes from deep ocean manganese nodule mining - Equatorial Pacific.

R.E. Burns; DOMES, PMEL
FY 78; $79.7K FY 79; $55.6K FY 80;

59. Current Measurements in the Benthic Plume Generated by Deep Ocean Manganese Nodule Mining

Determine deep ocean current dynamics in area of manganese nodule mining - Equatorial Pacific.

S. Hayes; DOMES, PMEL
FY 78; $133K FY 79; $64K FY 80;

60. Deep Ocean Mining Environmental Studies (DOMES) Data Base Management

These efforts are toward the establishment of a specialized DOMES data base, so constructed as to provide rapid and efficient data displays, graphic or digital, data summaries and statistical analyses, inventories of data collection and storage efforts, and other data products and services required by the DOMES Project and subsequent users products and services of the data base.

E.F. Law; EDIS, National Oceanographic Data Center, Wash. D.C.
FY 78; $7.3K FY 79; † FY 80;

DEPARTMENT OF COMMERCE (NOAA)

Mesa Program (continued)

61. MESA/Puget Sound Energy Research Project and MESA N.Y. Bight Data Base Management

These efforts are toward the establishment of a specialized PSERP data base, so constructed as to provide rapid and efficient displays, graphic or digital, data summaries and statistical analyses, inventories of data collection and storage efforts, and other data products and services required by the MESA/PSERP Project and subsequent users of the data base.

E.F. Law; EDIS, NODC, Wash., D.C.
FY 78; $41K FY 79; $15K FY 80;

62. Impact of DOMES Surface Plumes on Primary Productivity

Determine the biological effects of deep ocean mining surface plumes on primary productivity - equatorial Pacific.

R.E. Burns; DOMES
FY 78; $20K FY 79; † FY 80;

63. Hazardous Materials Response Project

To provide timely and effective employment of scientific resources during spill emergency situations. To provide the National Response Team, the Regional Response Team and the On-Scene Coordinator with scientific assistance. To assess damages resulting from the spill.

J. Robinson; MESA, Puget Sound
FY 78; $626K FY 79; $1,413.9K FY 80;

64. Heavy Metal Contaminants in Sea-Surface Microlayer and Near-Surface Waters

Seawater samples are to be collected from designated stations in the New York Bight. A minimum of 16 sea-surface microlayer samples and 16 sub-surface will each be analyzed for 7 metals (mercury, lead, cadmium, copper, chromium, nickel and zinc).

H. Seagran; MESA, Puget Sound
FY 78; $15K FY 79; † FY 80;

65. Engineering Support

Develop updated maintenance information (plans, procedures, training and data quality checks) for the CTD/current meters being used by MESA in the New York Bight, such that there will be a significant

Mesa Program (continued)

increase in the quantity and quality of field data obtained.

Paul Trapani; NOS, T&E Lab.
FY 78; $12K FY 79; † FY 80;

66. A Study in the Dispersal of Suspended Sediment From the Fraser River Into Northern Puget Sound Using Landsat Imagery

Suspended matter data and LANDSAT imagery will be collected for the northern Puget Sound and Strait of Juan de Fuca areas for correlaton. If the correlations are reasonably consistent in time and space, the data will be used to develop suspended matter distribution maps from digital tapes from previous years.

R.A. Feeley; MESA, Puget Sound
FY 78; $17.9K FY 79; $17.9K FY 80;

Ocean Dumping Program

67. Cytological, Cytogenetic and Embryological Development of Fish Eggs, DWD 106 - Northwest Atlantic

Laboratory, Cytogenetic and Embryological Development of Fish Eggs, DWD 106 - Northwest Atlantic.

K. Park; NMFS, NEFC, Oxford Lab.
FY 78; $30K FY 79; † FY 80;

68. A Survey of Animal Biota at DWC-106 - Northwest Atlantic, Utilizing Histopathology and Mutagenic Testing

Collect macroplankton, especially cyostacea, from dumpsites and nearby areas. Histologically examine samples for evidence of disease or injury which may be related to dumping. Test extracted samples for evidence of mutagenic compounds.

K. Park; NMFS, NEFC, Oxford Lab.
FY 78; $36K FY 79; $30K FY 80;

69. Identification of Principal Species, Community Structure and Diversity DWD 106, Northwest Atlantic

Describe the marine community present at deep water dumpsite - 106.

K. Park; NMFS, NEFC, Woods Hole Lab.
FY 78; $18.5K FY 79; $15K FY 80;

Ocean Dumping Program (continued)

70. (Puerto Rico Project) Development of Analytical and Monitoring Techniques for Pollutant Indicators of Ocean-Dumped Industrial Wastes

Field and laboratory studies of the inorganic component of pharmaceutical wastes dumped near Puerto Rico. Coordination and management of a multi-disciplinary study group at Texas A and M Univ.

K. Park; NOS, Rockville, MD
FY 78; $76.8K FY 79; † FY 80;

71. Site Characterization, Dispersal, and Biological Effects Studies At the Puerto Rico Chemical Waste Dumpsite

Field and laboratory studies of the chemical and biological behavior of pharmaceutical wastes dumped near Puerto Rico.

K. Park; NOS, Rockville, MD
FY 78; $66.2K FY 79; $15K FY 80;

72. Physical Oceanography of the Puerto Rico Chemical Waste Dumping Site

Field and laboratory description of the basic physical properties of the Puerto Rico dumpsite.

K. Park; NOS, Rockville, MD
FY 78; $42.9K FY 79; $37.1K FY 80;

73. Behavior of Waste Material and Inorganic Geochemistry at the Puerto Rico Chemical Waste Dumpsite

Field and laboratory studies of the inorganic component of pharmaceutical wastes dumped near Puerto Rico.

K. Park; NOS, Rockville, MD
FY 78; $47.6K FY 79; † FY 80;

74. Transition and Heavy Metal Chemistry Associated with Deep Water Dumpsite 106- Northwest Atlantic

Field and laboratory studies of dissolved and particulate transition metals. Laboratory studies of factors affecting the formation and history of precipitates formed when wastes mix with seawater and of the physical chemical form of major transition metal derived from wastes.

K. Park; NOS, Rockville, MD
FY 78; $103.8K FY 79; $109.2K FY 80;

DEPARTMENT OF COMMERCE (NOAA)

Ocean Dumping Program (continued)

75. Trajectory and Dispersion of a Waste Cloud in the Sea at DWD-106, Northwest Atlantic

Develop a model to predict waste distributions after dumping events.

K. Park; NOS, Rockville, MD
FY 78; $38.7K FY 79; $45.1K FY 80;

76. The Effects of Marine Pollutants on Marine Zooplankton at Deep Water Dumpsite 106; Northwest Atlantic

Determine sublethel effect of waste materials on survival, feeding rate, fecundity, respiration and other life processes of zooplankton.

K. Park; NOS, Rockville, MD
FY 78; $34.5K FY 79; $39.2K FY 80;

77. Refurbishment of Six Port Sea Water Sampling System, DWD-106 Project, Northwest Atlantic

Modify and recondition pumping system used to sample sea water while ship is underway in waste fields.

K. Park; NOS, Rockville, MD
FY 78; $102.9K FY 79; $24.5K FY 80;

78. Continuation of Acoustic Backscattering Studies At Deep Water Dumpsite 106 - Northwest Alantic

This project will collect data and analyze the information collected in the acoustical waste tracking experiment.

K. Park; NOS, Rockville, MD
FY 78; $102.9K FY 79; $85.3K FY 80;

79. The Environmental Response of Marine Bacteria to Waste Disposal Activities at Deep Water Dumpsite 106, Northwest Atlantic

Field and laboratory studies of effects of wastes on the ability of marine bacteria to mineralize organic materials.

K. Park; NOS, Rockville, MD
FY 78; $41.8K FY 79; $46K FY 80;

80. The Effect of Pollutants on Marine Phytoplankton at Deep Water Dumpsite 106 - Northwest Atlantic

The effect of major wastes at relevant concentrations on the

Ocean Dumping Program (continued)

growth rate of coastal and oceanic clones of phytoplankton species is examined.

K. Park; NOS, Rockville, MD
FY 78; $46.9K FY 79; $62K FY 80;

81. Ocean Dumping Studies - DWD - 106 Northwest Atlantic

Provide logistic support. Obtain and interpret oceanographic data from dumpsite cruises. Conduct program to determine trajectory of water through DWD-106 using radio trackable drogues.

M.C. Ingham; NMFS, Narragansett, RI
FY 78; $62.8K FY 79; $70K FY 80;

82. Evaluation of Selected Bioassay Techniques to Assess Potential Impacts of Dredged Materials on Two Disposal Sites in the Gulf of Mexico

Field and laboratory studies of the environmental characteristics of dredging sites along the western margin of the Mississippi Delta.

K. Park; NOS, Rockville, MD
FY 78; $37K FY 79; $10K FY 80;

83. Puerto Rico - Invertebrate Responses to Pharmaceutical Wastes

Laboratory studies of sublethal effects of pharmaceutical wastes upon growth, reproduction and physiology of arthropods characteristic of the Puerto Rico dumpsite.

K. Park; NOS, Rockville, MD
FY 78; $46.1K FY 79; $42.8K FY 80;

84. Description of Waste Material Dumped at the Puerto Rico Dump Site & Preliminary Sampling & Analysis of Organic Chemical Wastes at the Site

Field and laboratory studies of the chemical characteristics of the organic component of pharmaceutical wastes dumped into the ocean near Puerto Rico.

K. Park; NOS, Rockville, MD
FY 78; $25.3K FY 79; $71K FY 80;

DEPARTMENT OF COMMERCE (NOAA)

Ocean Dumping Program (continued)

85. Sensitivity of Marine Fishes to Organic Pollutants Dumped at the Puerto Rico Dumpsite

Laboratory studies of the sublethel effects of pharmaceutical wastes upon physiological processes of deep-sea fish.

K. Park; NOS, Rockville, MD
FY 78; $39.8K FY 79; $37.6K FY 80;

86. Deep Water Dumpsite 106 Investigation Project Management, Northwest Atlantic Area

The project provides field, administrative and scientific management of the National Ocean Survey Ocean Dumping Program industrial waste disposal site DWD - 106.

K. Park; NOS, Rockville, MD
FT 78; $260K FY 79; $280K FY 80;

87. Puerto Rico Industrial Dumpsite Project Management

Field and administrative and scientific management of the NOS/ODP industrial waste dumping site study program for the Puerto Rico dumpsite.

K.Park; NOS, Rockville, MD
FY 78; $150K FY 79; $180K FY 80;

88. Gulf of Mexico Industrial Dumpsite Investigation Project Management

Field and administrative and scientific management of the NOS/ODP industrial waste dumping site study program for the Gulf of Mexico.

K. Park; NOS, Rockville, MD
FY 78; $100K FY 79; $50K FY 80;

89. Gulf of Mexico Dredge Material Disposal Investigation Project Management

Field and administrative and scientific management of the NOS/ODP dredge spoil disposal site project for the Gulf of Mexico.

K. Park; NOS, Rockville, MD
FY 78; $26K FY 79; $10K FY 80;

Ocean Dumping Program (continued)

90. Inorganic Geochemistry of Industrial Waste Materials and Gulf of Mexico Disposal Sites

Field and laboratory studies of the chemical nature of the inorganic component of waste materials dumped into the Gulf of Mexico.

K. Park; NOS, Rockville, MD
FY 78; $17.9 FY 79; † FY 80;

91. Gulf of Mexico Dumpsite Studies Physical Oceanography

Descriptive studies of the physical characteristics of a waste dumping site located in the Gulf of Mexico.

K. Park; NOS, Rockville, MD
FY 78; $29K FY 79; † FY 80;

92. Site characterization, Biological Effects and Dispersal Studies at Gulf of Mexico Dumpsites

Field and laboratory studies of the chemical behavior of a biological sludge when dumped intc seawater in and from the Gulf of Mexico.

K.Park; NOS, Rockville, MD
FY 78; $15.4K FY 79; † FY 80;

93. Trace Organic Analysis of Industrial Wastes and Gulf of Mexico Disposal Sites and Project Coordination

Field and laboratory studies of the chemical properties of the organic component of a biological sludge dumped into the Gulf of Mexico.

Coordination of a multidisciplinary study group at Texas A&M University.

K. Park; NOS, Rockville, MD
FY 78; $42.7K FY 79; † FY 80;

94. Acoustic Studies of Industrial Wastes Dumped at Two Sites in the Gulf of Mexico

Collection and verification of acoustic tracking of material dumped at the disposal site in the Gulf of Mexico.

J.R. Proni; ERL, AOML
FY 78; $60.6K FY 79; † FY 80;

Ocean Dumping Program (continued)

95. Characterization and Transport Properties of Chemical Pollutants Dumped into the Gulf of Mexico

Laboratory studies of the chemical properties of a biological sludge into the Gulf of Mexico.

C. Parker; NOS, Rockville, MD
FY 78; $27.2K FY 79; † FY 80;

96. Acoustic Studies of Waste Material Dumped at the Puerto Rican Dumpsite

This project will track the waste from material disposed of at the Puerto Rico dumpsite using the acoustic method.

J. Proni; ERL, AOML
FY 78; $50K FY 79; $39K FY 80;

97. Effects of Pharmacuetical Wastes on Fish Behavior, Puerto Rico Dumpsite

This project is a part of a large effort by NOAA to determine what effect the discharge of pharmaceutical wastes will have on the behavior of fish at a disposal site off Puerto Rico.

K. Park; NOS, Rockville, MD
FY 78; $42.5K FY 79; † FY 80;

98. Effects of Organic Waste Materials on the Growth of Representative Types of Microalgae, Puerto Rico

Laboratory studies of sublethal effects of pharmaceutical wastes upon growth, reproduction and physiology of algae characteristic of the Puerto Rico dumpsite.

K. Park; NOS, Rockville, MD
FY 78; $19.2K FY 79; $19.6K FY 80;

99. Effects of Waste Materials on the Growth of Representative Types of Microalgae - Gulf of Mexico Project

Laboratory studies of sublethal effects of a biological sludge upon growth, reproduction and physiological processes of algae characteristic of the Gulf of Mexico.

K. Park; NOS, Rockville, MD
FY 78; $18.4K FY 79; † FY 80;

Ocean Dumping Program (continued)

100. Biological Effects of Ocean Dumping Wastes Upon Invertebrates - Gulf of Mexico Project

Laboratory studies of sublethal effects of a biological sludge upon growth, reproduction, and physiological processes of pelagic and benthic arthropods characteristic of the Gulf of Mexico.

K. Park; NOS, Rockville, MD
FY 78; $41.5K FY 79; † FY 80;

101. Sensitivity of Gulf of Mexico Fishes to Ocean Dumping Wastes

Laboratory studies of sublethal effects of a biological sludge upon basic physiological processes of deep water fishes.

K. Park; NOS, Rockville, MD
FY 78; $28.3K FY 79; † FY 80;

102. Dumpsite Monitoring Systems Development

Design, development and testing of an operatonal engineering model of an Underway Towed Pumping System for heavy metal measurement in Ocean Dumpsites. To conduct initial design concept studies with regard to the design of sampling chambers for use in heavy metal and organic carbon measurements of seawater.

B.P. Polanin; NOS, OMT, Rockville, MD,
FY 78; $38K FY 79; $50K FY 80;

Fisheries Habitat Investigation Program

103. Disease and Environmental Stress

Ultrastructural research on the effects of heavy metals and petroleum hydrocarbons on the integument and sensory tissues of larval marine fishes.

R. Murchelano; NMFS, Oxford, MD
FY 78; $161.9K FY 79; $161.6 FY 80;

104. Life Studies - Comparative Pathobiology

The objectives of this project are to diagnose infectious and noninfectious diseases of fishes, crustaceans and mollusks for Federal, State and foreign agencies, academic institutions, and

Fisheries Habitat Investigation Program (continued)

private enterprise.

A. Rosenfield; NMFS, Oxford, MD
FY 78; $163.7K FY 79; $172K FY 80;

105. Coastal Monitoring, Assessment and Protection

This project will conduct resource investigations in NE coastal waters of the U.S. to develop baseline data on the abundance of fish and zooplankton and assess these in terms of community stress and biological indices.

G. Kelly; NMFS, Woods Hole, MA
FY 78; $136.4K FY 79; $126K FY 80;

106. Behavior of Fishes Under Environmental Stress

This investigation conducts research on the effects of environmental stress (temperature hydrocarbons, etc.) on the behavior of marine fish and shellfish and key food chain organisms.

B. Olla; NOAA, NMFS, Sandy Hook, NJ
FY 78; $118K FY 79; $124.6K FY 80;

107. Coastal Ecosystem

This investigation conducts ecological research on the effects of environmental stress due to ocean dumping of dredging spoils, industrial wastes, and sewer sludge as well as on the seaward extent of contaminant effects resulting from riverine runoff and terrigenus export.

R. Reid; NMFS, Sandy Hook, NJ
FY 78; $217.2K FY 79; $260K FY 80;

108. Biological Oceanography of Stressed Environments

This investigation conducts research and monitoring activities concerned with the impact of contaminants and man's activities on primary production systems which culminate in commerical/ recreational fish and shellfish and their food-chain organisms.

J. Thomas; NMFS, Sandy Hook, NJ
FY 78; $226.2K FY 79; $114.6K FY 80;

Fisheries Habitat Investigation Program (continued)

109. Physiological Effects of Pollutant Stress (PEPS) and Baseline Environmental Physiology

This investigations conducts research to determine the physiological responses resulting from exposure of organisms to contaminants including toxic trace elements (metals), petroleum hydrocarbons, and halogenated hydrocarbons.

A. Calabrese; NMFS, Milford, CT

FY 78; $250K	FY 79; $310.7K	FY 80;

110. Environmental Chemistry

This investigation is responsible for conducting chemical analyses on living tissues, sediments and waters, and other components of the environment to determine the amounts of trace metals and organic contaminants.

R. Greig; NMFS, Sandy Hook, NJ

FY 78; $70.4K	FY 79; $126.7K	FY 80;

111. Mutagenics

Measurement of cytogenetic and cytological effects of marine contaminants and of natural environmental factors on developing fish eggs.

A. Longwell; NMFS, Milford, CT

FY 78; $25K	FY 79; $25K	FY 80;

112. Dynamical Numerical Marine Ecosystem Modeling

The bases for the project are very large numerical models which utilize available information and reproduce the distributions and processes in the marine environment. The models are both diagnostic and prognostic. The project is subject to international collaboration.

T. Laevastu; NMFS, NWAFC, Seattle, WA

FY 78; $50K	FY 79; $54.2K	FY 80;

113. Environmental Impacts - Physiology and Bioassy

Plan, implement, and manage environmental projects with reimbursible support. Quantitive effects of varying environmental and pollutants particularly on survival, growth and physiology of eggs, larvae,

Fisheries Habitat Investigation Program (continued)

juveniles of selected species (salmonids, crustaceans.)

S.D. Rice; NMFS, NWAFC, Auke Bay, AL
FY 78; $178.6K FY 79; $189.5K FY 80;

114. Environmental Impacts, Watershed and Estuarine Ecosystems - Effects of Logging

Impacts of timber harvesting on stream and estuary ecosystems in Alaska. Research is being conducted on the primary, secondary, and tertiary communities within the stream and on the secondary community within the estuary.

K. Koski; NMFS, NWAFC, Auke Bay, AL
FY 78; $173.9K FY 79; $176.1K FY 80;

115. Impact of Contaminants - Sublethal Biochemical Effects of Contaminants (88C242)

Impacts of petroleum hydrocarbons and their metabolites on different life stages of pelagic fish, flatfish and shellfish will be determined.

D.C. Malins; NMFS, NWAFC, Seattle, WA
FY 78; $446.4K FY 79; $421.8K FY 80;

116. Impact of Contaminants - Contaminant Effects on Life Processes

1) Determine nature and incidence of diseases of marine fishes and invertebrates of the north Pacific; 2) determine effects of petroleum on fish health; 3) identify populations of salmon and demersal marine fish; and 4) determine effects of petroleum on behavioral and chemosenory modalities.

H. Hodgins; NMFS, NWAFC, Seattle, WA
FY 78; $226.4K FY 79; $252.6K FY 80;

117. Impacts of Contaminants - Prince Williiam Sound Hydrocarbon Monitoring (88C249)

Port Valdez and Prince William Sound are being monitored for saturated and aromatic hydrocarbon levels in water, sediments, and mussels. Six sites will be sampled in the spring, summer, and fall of 1978.

W.D. Macleod; NMFS, NWAFC, Seattle, WA
FY 78; $83.2K FY 79; $86.7K FY 80;

Fisheries Habitat Investigation Program (continued)

118. Invertebrate Pathology (88C248)

Gross morphology and histology of the dungeness crab will be studied and described. Normal postmortem changes of the dungeness crab will be determined and described. Studies on inflammation and wound repair of the dungeness crab will be initiated.

A.K. Sparks; NMFS, NWAFC, Seattle, WA
FY 78; $78.4K   FY 79; $82.7K   FY 80;

119. Columbia River Development Program - Physiological Effects of Contaminants (88C244)

Objectives of this program are specifically related to the identification of effects of natural and man-induced contaminants and perturbations on aquatic organisms and ecosystems, and to applied aspects of habitat improvement.

G. Snyder; NMFS, Seattle, WA
FY 78; $257.4K   FY 79; $185.7K   FY 80;

120. Sedimentologic and Hydrographic Environments of St. Andrew Bay, Florida

This project is concerned with determining the hydrographic and sedimentologic properties of the central portion of the St. Andrew Bay estuarine system which contains areas of industrial pollution and spoil banks.

J.R. Grady; NMFS, Panama City
FY 78; $36K   FY 79; †   FY 80;

121. Flux, Chemical Speciation and Toxicity of Trace Metals in Estuarine and Coastal Waters

The overall objective of this research program is to understand the environmental behavior of trace metals in estaurine and coastal marine waters sufficiently to predict their fate and biological effects when released into these ecosystems.

F.A. Cross; NMFS, Beaufort, N.C.
FY 78; $189K   FY 79; $144.2K   FY 80;

122. Structure and Function of Estuarine and Nearshore Ecosystems

Determine variability in community structure and function

Fisheries Habitat Investigation Program (continued)

with season, environmental gradients and impact by man and its ultmate effect on production of commercial and sport fishery organisms in Southeastern United States.

G.W. Thayer; NMFS, Beaufort, N.C.
FY 78; $139.7K FY 79; $105.3K FY 80;

123. Effects of Environmental Conditions on Survival and Production of Marine Organisms

The objective of this research is to develop the capability to predict the impact of man-induced changes on fishery production. Research during FY 1978 was mainly directed towards understanding the response of young estuarine fish to ecological change, as measured by survival, growth, or development.

D.E. Hoss; NMFS, Beaufort, N.C.
FY 78; $185.3K FY 79; $140.1K FY 80;

124. Physiology Investigation, Southwest Fisheries Center, Tiburon Laboratory

Objective--to determine the relative contribution of selected factors affecting production (survival and growth) of striped bass eggs and larvae.

J.A. Whipple; NMFS, SWFC, Tiburon, CA
FY 78; $108.3K FY 79; $118.2K FY 80;

Fisheries Microconstituent Program

125. Environmental Contaminants in Fish and Shellfish and Their Implications to the Consumer

Determination of levels and concentration and transfer of organic and inorganic contaminants in water, sediments, and food chain selected food fish of the northeast Pacific.

M.A. Steinberg; NMFS, NWAC, Seattle, WA
FY 78; $142.8K FY 79; $142.8K FY 80;

126. Trace Metals Occurence/Survey (Contaminant Assessment)

To determine the extent of trace metal contamination in fishes and shellfishes of the South Atlantic and Gulf of Mexico, with emphasis on indepth analysis of mercury, selenium and lead in the edible

Fisheries Microconstituent Program (continued)

tissues of mackerels and reef fishes.

M. Sanders; NMFS, NWAFC, Seattle, WA
FY 78; $85K FY 79; $85K FY 80;

127. Trace Metal Chemical Form (Contaminant Assessment)

To identify the chemical/biochemical forms, binding properties and relationships with other trace elements or metals in the tissues of selected species of fish and shellfish, with emphasis on in depth analysis of methylmercury in pelagic and reef fishes, and arsenic compounds in shellfish.

M. Sanders; SEFC, Charleston, S.C.
FY 78; $91.8K FY 79; $191.8K FY 80;

128. Organic Contaminant Assessment)

To determine the extent and assess the impact of chemical and biological contaminants in fish and shellfish of the S. Atlantic and Gulf of Mexico. Emphasis on chlorinated pesticides.

J. Joseph; NMFS, SEFC, Charleston, S.C.
FY 78; $86.6K FY 79; $86.8K FY 80;

129. Trace Metals Toxicity (Contaminant Assessment)

To evaluate the toxicological and nutritional effects of heavy metals present as contaminants in fish and fishery products, with emphasis on the effects of enzyme hydrolysis and level of feed intake of such fishery products on arsenic metabolism in the laboratory rat.

T. Siewicki; NMFS, Charleston, S.C.
FY 78; 51.3K FY 79; $51.3K FY 80;

130. Biological Vectors (Contaminant Assessment)

Determine the effects of various microorganisms, including viruses and parasites, and their transmission on the utilization of fish and fishery products, with concomitant public health implications. Emphasis on detection of hepatitis virus.

D. Goldmintz; SEFC, Charleston, S.C.
FY 78; $7.9K FY 79; $7.9K FY 80;

Fisheries Microconstituent Program (continued)

131. Monitoring for Selected Organic Contaminants in Industrial Fish and Its Products

Provide to the fish reduction industry, on a continuing seasonal basis, quantitative information on the levels of selected contaminants in raw menhaden, oils, meals, and other products from both the Gulf of Mexico and the Atlantic.

P.E. Bauersfeld; NOAA, Charleston, S.C.
FY 78; 30K FY 79; $30K FY 80;

131a. National Microconstituent Task

Funds were used to establish a new program to address real and potential problems related to chemical contamination in sea food on a national basis.

H. Seagram; NMFS, Charleston, S.C.
FY 78; † FY 79; $600K FY 80;

Great Lakes Program

132. Environmental Engineering Models and Applications

Objectives are: (1) to develop and test improved simulation and prediction models and other tools for user applications to support trade-off analysis in water resource planning and management of water-related activities in the Great Lakes; (2) to develop a basis for rational decisions for the development and use of Great Lakes.

E.J. Aubert; ERL, GLERL
FY 78; $150K FY 79; $150K FY 80;

133. Hydrologic Properties

To develop improved understanding of the hydrologic processes of the Great Lakes Basin. Data are collected and analysed on hydrologic parameters to obtain a better understanding of Great Lakes hydrologic processes and to calibrate and verify mathematical models. Mathematical process-response and simulation models are developed including hydrologic response models, hydraulic transient models, basin runoff models, and water supply prediction models.

F.H. Quinn; ERL, GLERL
FY 78; $250K FY 79; $250K FY 80;

Great Lakes Program (continued)

134. Surface Waves and Water Level Fluctuations

The objectives of this project are to measure the distribution and variability of surface wind waves, wind set-ups, surges, and seiches within the Great Lakes and to develop improved empirical, theoretical and numerical models with which to predict these phenomena. Wind waves are measured each year in key geographical locations to understand the effects of fetch length, wind duration and intensity, and atmospheric stability in the wave generation process.

D.B. Rao; ERL, GLERL

FY 78; $505K	FY 79; $505K	FY 80;

135. Aquatic Ecology Models

The objectives of this project are to develop and test a series of models at several levels of complexity, that realistically simulate the fluctuations in quantity in ecologically meaningful components of the Great Lakes ecosystems.

A. Robertson; ERL, GLERL

FY 78; $220K	FY 79; $220K	FY 80;

136. The Dynamics of Material Movements in the Nearshore Zone

The objectives in this project are to determine the dynamics of the physical movements and chemical transformations of selected polluting and enriching substances within the nearshore zone. To determine the sources and ultimate fates of these materials.

A. Robertson; ERL, GLERL

FY 78; $475K	FY 79; $475K	FY 80;

137. Water Movements and Temperature

The objectives of this project are to measure and quantify the physical characteristics of current flows and interdependent water density (temperature) structure within the Great Lakes and to develop, as necessary, both theoretical and numerical models simulating the observed physical processes.

D.B. Rao; ERL, GLERL

FY 78; $600K	FY 79; $600K	FY 80;

138. Planktonic Succession

The objectives of this project are to describe the process of

Great Lakes Program (continued)

succession in the plankton of the Great Lakes to determine the mechanisms that control succession and the quantitative relationships of these mechanisms to that process.

A. Robertson; ERL, GLERL
FY 78; $312K FY 79; $312K FY 80;

Sea Grant Program

139. Use of Estuarine Hydrodynamic Models to Describe the Distribution Dynamics of Trace Elements in the Sediments of Maine Estuaries

To modify two basic types of estuarine hydrodynamic models to include features characteristic of Maine (northern New England) coastal estuaries, namely, a large tidal excursion, a vertically well mixed water column and the change of geometry of the solution field brought about by extensive exposed sediment flats at low tide.

C.T. Hess; Univ. of Maine
FY 78; $29.9K FY 79; $38.5K FY 80;

140. Modeling of Fe, Mn, Cu and Mo Sedimentary Flux in the Great Bay Estuary, New Hampshire

To determinne the flux of nutrients and selected trace metals (Fe, Mn, Cu, Mc) from the sediments of Great Bay, N.H. into the overlying estuarine water; and to understand the rate of incorporation of trace metals (Fe, Mn, Cu, Mo) into various inorganic and organic solid phases (pyrite, humic acid, fulvic acid, chlorins) of these sediments.

H. Guadette; Univ. of New Hampshire
FY 78; $28.6K FY 79; $28.6K FY 80;

141. Trace Element Uptake in the Marine Food Chain

The objectives of this work are to compare yield and trace element uptake/accumulation in a limited aquaculture system based on high energy electron bombarded and secondary treated sewage effluent fertilization. This study will be performed on sewage effluents typical of coastal communities with both light and heavy trace element loadings.

M. Janghorbani; New England Aquarium Corp.
FY 78; $36.8K FY 79; $57.1K FY 80;

Sea Grant Program (continued)

142. Ecodynamic Analysis of Algal Blooms Fouling Nahant Bay Beaches

(1) identify the dominant aquatic ecosystem processes responsible for the intense algal blooms which annually foul Nahant Bay Beach; (2) investigate the feasibility of harvesting these algae for use as animal fodder; (3) develop rate laws describing how the ecodynamic processes affecting bloom growth depend on ecosystem variables such as nutrients, light.

A.V. Quinlaw; Sea Grant; Massachusetts Inst. of Technology
FY 78; $70K FY 79; $80K FY 80;

143. The Effects of Oil Composition and Physical Properties and the Ambient Water on Oil Slick Dispersion

Overall objective of this program is to determine the influence of oil slick chemical composition and physical properties and the influence of ambient water on oil slick dispersion.

R.G. Donnelly; Sea Grant; Massachusetts Inst. of Technology
FY 78; $27.1K FY 79; † FY 80;

144. A Combined Ecological And Economic Analysis of the feasibility of Large Scale, Waste Recycling Marine Bivalve Aquaculture Systems.

Using data from the scientific literature and uptake-depuration studies in progress, a simple model will be made of algal production, shellfish growth, contaminant uptake and depuration by bivalve species in a waste recycling aquaculture system. The model will be used to assess the economic feasibility of such a system and/or identify those subsystems that may be viewed as cost-effective and applicable in other aquaculture ventures.

R. Mann; Sea Grant; Woods Hole Oceanographic Inst.
FY 78; $26.7 FY 79; † FY 80;

145. Histopathology and Enzymology of Fish Exposed to Hydrocarbons

To continue studies of the relationship between environmental and experimental contamination by organic pollutants and the appearance both of specific histopathological lesions and disease states, and elevated levels of mixed-function oxygenases in Fundulus heteroclitus.

J.J. Stegman; Sea Grant; Woods Hole Oceanographic Inst.
FY 78; $32.9K FY 79; † FY 80;

Sea Grant Program (continued)

146. Natural and Anthropogenic Volatile Organic Compounds in Coastal Waters (Levels, Sources, and Sinks)

To study volatile organic compounds in coastal seawater: their concentration, sources, sinks, and interactions with other parts of the ecosystem.

O.C. Zafiriou; Sea Grant; Woods Hole Oceanographic Inst.
FY 78; $23.1K FY 79; † FY 80;

147. A New Method for Characterization of Marine Organic Material in the Water Column and Sediments

Develop the techniques of gas chromatography-thermal distillation as a rapid method for determination of anthropogenic organic pollutants, such as petroleum and chlorinated hydrocarbons, absorbed on small samples (0.1-300 mg) of marine particulate material.

J.K. Whelan; Sea Grant; Woods Hole Oceanographic Inst.
FY 78; $27K FY 79; $24K FY 80;

148. Source and-Fate of Estuarine Sediments - Boston Harbor

Objectives for this 3-year program include: 1) Defining the sedimentary provinces and regime within Boston Harbor; 2) Determining the source, composition, spatial and temporal variations and flux of seston within the harbor, with particular emphasis upon antropogenic material (assumed to be the major sediment source).

D.A. Ross; Sea Grant; Woods Hole Oceanographic Inst.
FY 78; $56.9K FY 79; $40K FY 80;

149. Stimulated Marine Bio-production

We will evaluate in the next three years how much we can increase production of fish and shellfish by increasing plant production in tidal salt marshes and what the potential consequences of these increases will be to the local communities in which they occur.

J.M. Teal; Sea Grant; Woods Hole Oceanographic Inst.
FY 78; $72.2K FY 79; † FY 80;

Sea Grant Program (continued)

150. Contaminants in the Dredged Spoils and Benthic Organisms of Long Island Sound, and the Disposal of Dredged Materials

To document the levels of PCBs and of several metals (Pb, Cu, Cs, Cd, Ni, Zn, Fe) in dredged spoils and in naturally occurring sediments of similar texture in Long Island Sound. We proposed to determine the concentrations of "total contaminants" and to estimate the "available fractions" -- that part available for biological uptake--for each of these constituents.

J.R. Schubel; Sea Grant; State Univ. of New York
FY 78; $16.8K FY 79; † FY 80;

151. A Critical Assessment of the Pressures on New York's Marine Marine Coastal Zone from Physical Alterations

This project will develop a more effective strategy for management of the physical alterations of New York's coastal marine zone. Significant phases include the identification, motive, extent and location of past and present physical alterations, project permit application and actions taken on those applications.

J.R. Schubel; Sea Grant; State Univ. of New York
FY 78; $17.2K FY 79; † FY 80;

152. Antibacterial Mechanisms in Clams and Oysters - The Contribution of the Water Stream to Bacterial Clearance

To extend our existing study on innate antibacterial mechanisms to include a study of the contribution of the clean water stream in removing bacteria that have been phagocytosed and carried through the epithelium to the exterior of the shellfish and/or have been ingested and transported through its intestine in feces.

J.F. Timoney; Sea Grant; Cornell University (Ithaca Campus)
FY 78; $7.9K FY 79; † FY 80;

153. Survey for the Detection of Viruses in Hard Clam (Mercenaria Mercenaria)

To identify human viruses from hard clams taken from closed or polluted beds and to identify human viruses from various stages of the depuration process.

J.H. Gillespie; Sea Grant; Cornell University (Ithaca Campus)
FY 78; $31.3K FY 79; † FY 80;

Sea Grant Program (continued)

154. Distribution, Flux & Biological Effects of Heavy Metal Pollutants in the Newark Bay Estuary Heavy Metal Transport Patterns in Newark Bay

To provide data on pollutant transport in Piles Creek through study of marsh sediments. To show and quantitate heavy metal flux in selected regions of Newark Bay. To investigate the heavy metal distribution in Newark Bay. To investigate potential heavy metal sites of deposition in Great Egg Harbor.

A.L. Meyerson; Sea Grant; Kean College of New Jersey
FY 78; $25.1K FY 79; $25K FY 80;

155. Atmospheric Contributions to the pH, Trace Metal, and Anion Content of Newark Bay

To determine the atmospheric contribution of certain metals and anions to Newark Bay through the process of precipitation and fallout. 2. To provide a precipitation collecting network with sufficient coverage of the Newark Bay area so that the data collected can be utilized by all parties in the Newark Bay Group that have need for information on atmospheric inputs.

C.H. Murphy; Sea Grant; Kean College of New Jersey
FY 78; $13.3K FY 79; $8.2K FY 80;

156. Methylmercury - Induced Neuropathology in Estuarine Fish

The uptake of chronically administered methylmercury into the nervous system of fish will be studied for distribution into neuronal and non-neuronal cells by means of cytochemistry, electron microscopy and atomic absorption spectroscopy. This should take one year.

P. Weis; Sea Grant; New Jersey Medical School
FY 78; $17.1K FY 79; † FY 80;

157. Heavy Metal and Nutrient Distribution in Newark Bay and the Great Egg Harbor

To establish water quality impairment, if any, due to dredging in the Newark Bay. To provide analytic and laboratory services to other projects in the Newark Bay Study Group.

S.L. Cheng; Sea Grant; New Jersey Inst. of Technology
FY 78; $21.7K FY 79; † FY 80;

Sea Grant Program (continued)

158. Acute and Chronic Toxicology of Selected Target Species to Mercury and Zinc, and Determination of Related Pathophysiological Events

To determine the toxic response of three key target species following both acute and chronic exposure to mercury and zinc, singly and in combination (in view of actual levels and potential interaction exhibited by those two metals during field analyses.)

S.J. Koepp; Sea Grant; Montclair State College
FY 78; $23.7K FY 79; $20K FY 80;

159. Biotic and Abiotic Mobilization of Trace Metals to Facilitate Waste Recovery and Utilization

The objective of the project is to evaluate anaerobic methylation, solubilization, volatilization, and ultimate removal of toxic trace metals from sewage sludge and harbor dredge spoil so that such materials may ultimately have beneficial use.

J.M. Bellama; Sea Grant; Univ. of Maryland (College Park Campus)
FY 78; $25.1K FY 79; $25.1K FY 80;

160. Polycyclic Aromatic Hydrocarbons in Chesapeake Bay - Monitoring Levels in Water, Sediments, and Shellfish & for Estimating Hazards

1) to develop a system for measuring polyaromatic hydrocarbons (PAH's) in oysters, sediments, and water, and their potential biological hazard, and 2) to assess the extent and hazard of PAH contamination in Chesapeake Bay sediments, waters, and oysters.

H.J. Devoe; Sea Grant; Univ. of Maryland (College Park Campus)
FY 78; $28.2K FY 79; † FY 80;

161. Monitoring Shellfish from the Chesapeake Bay for Enterovirouses of Human Origin

Procedure 1: identification of all isolates made; 2) quantification of virus present in positive specimens; 3) determination of the seasonal influence on the frequency of isolations; 4) comparison of the virus data with other microbiological data to determine the correlation between bacterial indicators of pollution and the presence of enteroviruses.

F.M. Hetrick; Sea Grant; Univ. of Maryland (College Park Campus)
FY 78; $34.2K FY 79; † FY 80;

Sea Grant Program (continued)

162. Microbial Indicators of Resource Quality in Chesapeake Bay

The objectives of this project are: 1) to evaluate the coliform index as a microbial indicator for estuarine water and shellfish in the context of decision-making in shell fisheries managment; 2) to determine the fluctuation of coliform counts as a function of the natural microbial load.

R.R. Colwell; Sea Grant; Univ. of Maryland (College Park Campus)
FY 78; $59.7K FY 79; † FY 80;

163. Development of a Methodology to Predict Mixing Dispersion of Effluents from Ocean Outfalls on the North Carolina Coast

The overall objective is to establish an analytical method by which the environment impact and economic costs of any proposed ocean outfall system can be evaluated.

F.Y. Sorrel; Sea Grant; Univ. of North Carolina
FY 78; $9.6K FY 79; † FY 80;

164. Identification and Incidence of Hazardous Microorganisms in Seafood Products

Develop and adapt methodology to detect pathogenic bacteria in seafoods, particularly those cells injured by environmental stresses and which are not detectable by conventional analytical procedures.

M.L. Speck; Sea Grant; North Carolina State Univ.
FY 78; 18K FY 79; $12.2K FY 80;

165. Evaluation of Rangia Guneata as a Food Product for Compliance with Public Health Standards

Objectives are to: 1) Determine relationship between bacteriological quality of water and sediment to the bacteriological quality of Rangia cuneata meats. 2) Ascertan whether preliminary evidence of unusually high standard plate counts of Rangia meats are of any sanitary significance.

B.E. Kane; Sea Grant; Univ. of North Carolina
FY 78; $9K FY 79; $11.8K FY 80;

Sea Grant Program (continued)

166. Assessment and Control of Virus Contamination of Shellfish

1) Quantitatively establish the relationship between sewage contamination and enteric virus levels in shellfish and in the waters and sediments of their environment. 2) Establish the conditions for eliminating enteric viruses and bacteria from shellfish by transferring (relaying) them to unpolluted waters.

M.D. Sobsey; Sea Grant; Univ. of North Carolina
FY 78; $38.6K FY 79; $41K FY 80;

167. Interactions of Insecticide Growth Regulators on Commercially Important Marine Crustaceans

The overall objectives of the proposed research are to investigate the effect of the growth regulating insecticides on the growth and development of the prawn, Macrobrachium sp. and the white brown shrimps, Penaeus sp.

T.K. Borg; Sea Grant; Univ. of South Carolina
FY 78; $15K FY 79; $22.5K FY 80;

168. Oil Spill Experiment

To gain predictive capability to estimate the probable impacts of oil on coastal marshes by: (1) determining water and sediment load exchanges across nearshore hydrographical fronts, (2) determining the degradation rates of hydrocarbon components in water and marsh sediment, (3) determining the effects of hydrocarbons on marsh flora and fauna.

D.W. Menzel; Sea Grant; Skidaway Inst. of Oceanography
FY 78; $63.2K FY 79; † FY 80;

169. Effects of Treated Pulp Mill Effluents on Microbial Populations in Georgia Estuarine Waters and Sediments

Production of pulp and paper products in one of the largest industries of the coastal regions of Georgia and the southeast. Although the industry has recently initiated various pollution abatement procedures, wastewater from Kraft pulp mills (KME) remains one of the most complex and highly toxic of industrial effluents.

R.E. Hodson; Sea Grant; Univ. of Georgia
FY 78; $27.8K FY 79; $43.3K FY 80;

Sea Grant Program (continued)

170. Coastal Watershed Development and Estuarine Productivity - hydrodynamic Criteria for Management

The ultimate objective of this project is the development of guidelines in the form of a planning manual for the rational development of coastal drainage basins with minimum impact on the corresponding estuary's life supporting capability.

B.A. Christenses; Sea Grant; Univ. of Florida
FY 78; $83.5K FY 79; $74.8K FY 80;

171. Anaerobic Bacteria as Pathogens of Fish

To demonstrate that susceptible hosts can be infected with Eubacterium trantellus (and possibly by other anaerobes) by exposure to Biscayne Bay water, sediment, primary treated municipal sewage mixed with Bay water, or by a diet contaminated with the pathogen.

B. Sallman; Sea Grant; Univ. of Miami
FY 79; $38.8K FY 79; $38.8K FY 80;

172. Effects of Sewage Pollution Abatement on Environmental Quality in Hillsborough Bay Florida

The objectives of the project are to: Continue sampling and analyses of benthic infaunal invertebrates and water quality at 12 stations in Hillsborough Bay during AWT plant operations, using same procedures as during 1975-1977.

J.L. Simon; Sea Grant; Univ. of South Florida
FY 78; $55.8K FY 79; $62K FY 80;

173. Coastal Watershed Development & Estuarine Productivity - Ecological Criteria for Management

The overall objective of the project is to develop guidelines for coastal drainage basin and estuarine development, particularly in reference to the effects of timber harvesting.

R.J. Livingston; Sea Grant; Florida State Univ.
FY 78; $40.5K FY 79; $42.9K FY 80;

Sea Grant Program (continued)

174. Coastal Watershed Development and Estuarine Productivity (Microbiological Criteria for Management)

To monitor the changes in toxicity of upland runoff water with variable treatments using the activity and population structure of the detrital microflora and the feeding behavior of primary detritivores.

D.C. White; Sea Grant; Florida State Univ.
FY 78; $40K FY 79; $40.8K FY 80;

175. Culture and Transplant Studies of the Seagrass Ruppia Maritima

Establish methods for economically transplanting seagrass in estuaries of northwest Florida and, perhaps, along the entire east coast; produce guidelines describing the environmental parameters necessary for successful transplant;

P.A. Winter; South Grant; Univ. of West Florida
FY 78; $37.7K FY 79; $37.7K FY 80;

176. A Survey of Gulf Coast Oysters for Pathogenic Organisms

The objective of this project is to survey Gulf Coast Oysters to determine whether they possess potentially pathogenic organisms such as those that have been found in Chesapeake Bay oysters.

H. Hawkins; Sea Grant; Univ. of South Alabama
FY 78; $3.1K FY 79; † FY 80;

177. Viral Evaluation of Prohibited Oyster Growing Waters

To evaluate the enterovirus concentration of oysters sampled from a prohibited reef versus the "natural viral background" of a control reef which is bacteriologically approved for public harvest and examine samples for hepatitis B surface antigen.

R. Ellender; Sea Grant; Univ. of Southern Mississippi
FY 78; $15.7 K FY 79; $20.6K FY 80;

178. Effect of Sediment pH and Oxidation-Reduction Potential on Degredation of Crude Oil

Determine degradation rates of alkane and aromatic fraction of

Sea Grant Program (continued)

crude oil in sediment-water mixture under different oxidation-reduction and pH conditions; and (2) to determine degradation rates in different ecosystems of Louisiana coastal wetlands.

W.H. Patrick; Sea Grant; Louisiana State Univ.
FY 78; $43.1K FY 79; $42.9K FY 80;

179. Effects of Man's Alterations on Wetland and Estuarine Chemistry

This project will determine if specific lakes of Barataria Basin and a source or sink for nitrogen and phosphorus and characterize sediment profile and sediment water interfaces in shallow bays, lakes and channels.

W.H. Patrick; Sea Grant; Louisiana State Univ.
FY 78; $74.9K FY 79; $43.2K FY 80;

180. Effects of Current Management Practices on the Primary Productivity of the Barataria Basin

The specific objectives of this study are to determine the ecological effects of current management practices on the swamp forest and brackish marsh, and to identify limiting factors bringing about such effects.

J.S. Gosselink; Sea Grant; Louisiana State Univ.
FY 78; $42.4K FY 79; $41.5K FY 80;

181. A Method for Monitoring Sublethel Stress in Coastal Plant Communities

The overall objective of this study is to evaluate via the energy charge ratio the intensity of sublethal stress in a variety of coastal plant communities.

I.A. Mendelssohn; Sea Grant; Louisiana State Univ.
FY 78; $38.6K FY 79; $32.7K FY 80;

182. Biological Application for Stabilization of Dredged Material - Corpus Christi Area

1. To study the plants and methods required to stabilize recent and mature dredged materials in the Corpus Christi area. 2. To

Sea Grant Program (continued)

select several test plots in the Harbor Island and Rincon Industrial Park areas for the research.

C.H. Oppenheimer; Sea Grant; Univ. of Texas
FY 78; $35K FY 79; $20K FY 80;

183. Estuarine Sewage Outfalls as a Potential Site for Transfer of Bacterial Plasmids

1. To determine the number of coliform bacteria and estuarine bacteria around sewage treatment plant outfall which contain antibiotic-resistant plasmids. 2. To study whether sewage bacteria can transfer plasmid-mediated antibiotic-resistance under laboratory conditions.

R.K. Sizemore; Sea Grant; Univ. of Houston
FY 78; $10K FY 79; † FY 80;

184. Accumulation and Transfer of Nutrients and Selenium in an Estuarine Food Chain

1. To determine the rates and routes of accumulation of selenium by members of different levels in the central Texas estuarine ecosystem. 2. To establish the degree and magnitude of food chain transfer and biomagnification.

J.M. Neff; Sea Grant; Texas A&M Univ.
FY 78; $34K FY 79; $30K FY 80;

185. Characterization and Behavior of Organic Contaminants in the Galveston Bay Area

To evaluate the environmental quality of certain coastal waters, specifically to characterize and quantitate several classes of organic contaminants in various environmental components of the Galveston Bay estuary.

C.S. Giam; Sea Grant; Texas A&M Univ.
FY 78; $50K FY 79; † FY 80;

186. Coastal Wetland Management - Effects of Disturbance on Estuarine Function

The objective of this three-year project is to understand the ecological functioning of southern California wetlands under

Sea Grant Program (continued)

natural and disturbed conditions. The research emphasizes study of the base of the food chain, the primary producers.

J.B. Zedler; Sea Grant; San Diego State Univ.
FY 78; $20.6K FY 79; $21.4K FY 80;

187. Temperature Tolerances of Benthic Marine Invertebrates and Their Relationship to Regulatory Requirements for Thermal Effluent

To obtain critically needed information about temperature tolerances and related effects on survival, growth, condition, reproductive characteristics; and recruitment for benthic invertebrate species inhabiting shallow water.

R.F. Ford; Sea Grant; San Diego State Univ.
FY 78; $33.3K FY 79; $39.8K FY 80;

188. Ecology of Small Tidal Lagoon Under the Influence of Urban Receational Use

Goal is to identify and quantify important interactions between the lagoon and the urban environmental influences. Of specific interest are the reason for the apparently unique success of the hard clam.

P. Kremer; Sea Grant; Univ. of Southern California
FY 78; $14.2K FY 79; $18K FY 80;

189. Sediment Accumulation and the History of Pollutant Accumulation in San Francisco Bay

Measure the rate of sediment accumulation in San Francisco Bay and try to identify the orgin of this sediment, and look for periods of rapid sediment input which may reveal episodes of major flooding in the system and use these measurements to explore the history and fates of pollutant in the system.

D.E. Hammond; Sea Grant; Univ. of Southern California
FY 78; $25K FY 79; $23.8K FY 80;

190. Wetlands Management in Coastal Zone Planning - A Prototype Framework for Relating Natural Science and Land Use

The overall objective is to develop an effective means for

Sea Grant Program (continued)

relating scientific information to planning and management within wetland areas.

T.G. Dickert; Sea Grant; Univ. of California (Berkeley Campus)
FY 78; $113K FY 79; $83K FY 80;

191. Tidal Flow and Pollutant Dispersion in Estuaries

The overall objective is to develop a practical and economical procedures for analyzing two-dimensional tidal dynamics in real estuaries based on a combination of finite element analysis, interative model decomposition, and variational calculus.

D.F. Winter; Sea Grant; Univ. of Washington
FY 78; $27.5K FY 79; † FY 80;

192. Mollusks as Indicator Organisms in Marine Benthic Communities

To utilize benthic marine mollusks as indicators of spatial and trophic structure in benthic communities which reflect ocean water quality conditions in both natural and stressed environments.

E.A. Kay; Sea Grant; Univ. of Hawaii (Manoa Campus)
FY 78; $16.7K FY 79; † FY 80;

193. Microbiological Indicator for Ascertaining Fecal Contamination of Marine Recreational Waters

To determine a superior indicator of fecal pollution of Hawaiian coastal waters than the coliform bacteria currently being used with special emphasis on the applicability of the fecal coliform and fecal streptococcus relationship as a reliable indictor system.

R.S. Fujioka; Sea Grant; Univ. of Hawaii (Manoa Campus)
FY 78; $12.7K FY 79; $9.3K FY 80;

194. Pathogenic Human Enteric Viruses in Hawaiian Ocean Waters - Role and Effects of Antiviral Agents(s)

To characterize the properties of the virus-inactivating agent(s) present in the ocean waters off Mamala Bay and Pearl Harbor. Studies will be made to isolate, characterize, and identify these microbial agent(s).

P.C. Loh; Sea Grant; Univ of Hawaii (Manoa Campus)
FY 78; $46.3K FY 79; $22.8K FY 80;

Sea Grant Program (continued)

195. Petroleum Hydrocarbons and Heavy Metals in Great Lakes Surface Films

To continue to determine the concentrations of hydrocarbons and trace metals face films from different Great lakes environments. To identify point sources and measure their contributions of hydrocarbons and metals to Lake Michigan.

F. Meyers; Sea Grant; Univ. of Michigan
FY 78; $37.5K FY 79; † FY 80;

196. Federal, State, Manufacturer, User and Environmental Group Interaction in Toxic Substance Regulation and Control

Monitor the process used by EPA in drafting rules and regulations under the new Toxic Substance Control Act. Provide lay interpretations of the rules and regulations suitable for advisory services dissemination. Evaluate the differential impacts of the rules and regulations upon the five major interest groups involved.

D.A. Bronstein; Sea Grant; Univ. of Michigan
FY 78; $5K FY 79; † FY 80;

197. Early Assessment of Potential for Environmental Toxicity of Pollutants in the Great Lakes

Selection of chemicals for preliminary assessment based on likelihood of release to the environment, persistence and bioconcentration. (Chemicals known to be environmental problems will be excluded). These chemicals will be ranked and evaluated according to their potential for toxicity.

R. Hartung; Sea Grant; Univ. of Michigan
FY 78; $25.7K FY 79; $21.9K FY 80;

198. Uptake, Accumulation and Removal of PCB's by Great Lakes Phytoplankton

To determine the uptake rate and accumulation (storage) capacity of selected PCBs among different taxonomic groups of phytoplankton isolated from the Great Lakes. To adapt continuous-flow bio-assay techniques for analysis of PCBs' effects on algal growth.

C.K. Lin; Sea Grant; Univ. of Michigan
FY 78; $20K FY 79; $29.3K FY 80;

Sea Grant Program (continued)

199. The Bioaccumulation of PCB's by Food Web Concentration in Fish

This study will determine the uptake and excretion of PCBs by the rathead minnow (Pimephales premelas) and/or the rainbow trout (Salmo gardneri) when fed a diet of PCB contaminated midges.

P.G. Meier; Sea Grant; Univ. of Michigan
FY 78; $21.5K FY 79; † FY 80;

200. The Role of Sediments and Suspended Particulate Material in the Translocation of PCB's in Aquatic Environments

Measure the rate and extent of PCBs accumulation in fish and invertebrates exposed to contaminated sediments and suspended particulates in a dynamic system.

H.E. Johnson; Sea Grant; Univ. of Michigan
FY 78; $21.2K FY 79; † FY 80;

201. Release of PCB from Sediment

Use a modified model ecosystem to: a. determine the magnitude and rate of exchange of PCB's between natural lake sediment and overlying water. b. determine whether gaseous exchange of PCB's at the air/water interface affects the direction of flow of the exchange of PCB/s between the sediment and the water.

C.P. Rice; Sea Grant; Univ. of Michigan
FY 78; $29.4K FY 79; $20.7K FY 80;

202. Absorption of Polychlorinated Biphenyls on Suspended Solids & Their Distribution & Differential Accumulation in Rivers, Harbors & Lakes

1. To quantify and submodel the exchange dynamics between PCB's and suspended solids typical for the waters and sediments of the Great Lakes system. 2. To quantify and submodel the sedimentation and vertical transport of these solids and their associated PCB burdens.

W.J. Weber; Sea Grant; Univ. of Michigan
FY 78; $30K FY 79; $32.8K FY 80;

203. Impact of PCB Contamination of Salmonid on Sports Fishing in Michigan

PCB contamination of Great Lakes fish poses a potential problem

Sea Grant Program (continued)

for the sports fishing industry in the area. The eventual impacts upon the industry depend upon the reactions of anglers to restrictions and changes in the quantity and/or quality of the catch. The objectives of this study may be categorized into two basic areas.

S.R. Rideout; Sea Grant; Univ. of Michigan
FY 78; $14K FY 79; † FY 80;

204. Response of Primates to Polychlorinated Biphenyls

To determine the effects of polychlorinated biphenyls (PCBs) on primates when consumed in levels destined for human consumption. Specifically: approximating those now found in foods, such as fish; to determine the effect of the PCBs on general body health; to determine effects of PCBs on reproduction.

J.R. Allen; Sea Grant; Univ. of Wisconsin
FY 78; $13.9K FY 79; $21.8K FY 80;

205. Fate of Arsenic Deposited in Green Bay by the Menominee River

To develop a mass balance on total arsenic and arsenic species for Green Bay in the Menominee River region. To measure the rates of arsenic species transformations in laboratory experiments and compare these results with field measurements of As species. To develop a chemical mass balance model to explain observed arsenic distributions.

M.A. Anderson; Sea Grant; Univ. of Wisconsin
FY 78; $21K FY 79; $24.5K FY 80;

206. Nonpoint Source Pollution in Green Bay and its Implication for Water Quality Management

To analyze the implications of current and conservation-oriented land use practices on the quality of receiving waterways in the Green Bay area. To simulate alternative comprehensive management policies and evaluate their impact on water quality in the lower Fox River-Green area.

D.W. Bromley; Sea Grant; Univ. of Wisconsin
FY 78; $23.8K FY 79; $8.6K FY 80;

Sea Grant Program (continued)

207. Air Pollution Inputs of Organic and Inorganic Substances to Lake Michigan Water

To derive relationships between levels of organic and inorganic substances in aerosols and rain and by this data, and the estimated atmospheric pollutant input, to differentiate between natural and anthropogenic inputs into Lake Michigan.

A.W. Andren; Sea Grant; Univ. of Wisconsin
FY 78; $21.3K FY 79; $22K FY 80;

208. Petroleum Hydrocarbons in the Sediments and Benthos of Lake Michigan (Indiana Harbor) and Superior (Duluth Harbor)

To measure the levels of selected aliphatic and aromatic hydrocarbons in extracts from sediments and organisms collected from the near shore area of Lake Michigan adjacent to the Indiana Harbor and from Duluth Harbor in Lake Superior. To evaluate the levels of petroleum derived versus indigenous aliphatic and aromatic hydrocarbons.

A.W. Andrew; Sea Grant; Univ. of Wisconsin
FY 78; $28.4K FY 79; $33.3K FY 80;

209. Evaluation of Processes Controlling the Trace Metal Status of Southern Lake Michigan

The project will deterimne the rate of tributary input of metals. Solubilization of particulate metals at the air/water interface by interactions with surface organic microlayers. Accumulation of dissolved metals by plankton in surface waters. Settling rates of particulates metals. Solubilization or particulate metals during settling from the water column.

D.E. Armstrong; Sea Grant; Univ. of Wisconsin
FY 78; $25.5K FY 79; $29.1K FY 80;

210. On Site-Heavy Metal Analysis Using Anodic Stripping Voltammetry

To build and test a prototype portable instrument for on-site measurement of trace metal concentrations in water samples.

W.J. Blaedel; Sea Grant; Univ. of Wisconsin
FY 78; $7K FY 79; $14.4K FY 80;

Sea Grant Program (continued)

211. Response of Daphina Populations to Long-Term Cadmium Exposure

To study the effect of long-term exposure to sublethal levels of cadmium on Daphnia populations. Specifically: 1. To measure the effect of chronic cadmium stress on Daphnia's ability to detect and to avoid predators. 2. To measure Daphnia's ability to accumulate and concentrate cadmium in its body.

A. Brooks; Sea Grant; Univ. of Wisconsin
FY 78; $12.1K FY 79; $15K FY 80;

212. Biotransformation and Disposition of Great Lakes Microcontaminants in Salmonids

To provide a data base upon which to develop toxicological concepts concerning specific organic microcontamination in Lake Michigan fish.

J.J. Lech; Sea Grant; Medical College of Wisconsin
FY 78; $20.7K FY 79; † FY 80;

213. Accumulation and Biological Availability of PCB's in Lake Michigan Sediments

To determine the rate of PCB accumulation in Lake Michigan sediments and evaluate the present and future rate of PCB transport from the sediments to pelagic fishes via benthic invertebrates.

D.E. Armstrong; Sea Grant; Univ. of Wisconsin
FY 78; $35.6K FY 79; † FY 80;

214. Accumulation, Distribution and Elimination of Polychlorinated Biphenyls (PCB's) in Yellow Perch Fed a Contaminated Ration

Determine the concentration of weathered PCBs in fish meal produced from Great Lakes fish that, when fed to fingerling yellow

Sea Grant Program (continued)

perch for 36 weeks, will produce a final fish product that will meet the FDA tolerance level for human food (5ppm in the edible portion).

R.E. Peterson; Univ. of Wisconsin
FY 78; $20.5K FY 79; $129.9K FY 80; †

215. Effects of Spawing on Distribution and Elimination of Polychlorinated Biphenyls in Lake Michigan Fish

Rate and extent of transfer of PCB's from yolk fluid to the body of developing sac fry. Distribution of transferred PCB's in sac fry and juvenile fish and rates of PCB elimination.

R.E. Peterson; Univ. of Wisconsin
FY 78; $15.3K FY 79; $20.9K FY 80; †

216. Distribution, Flux, and Biological Effects of Methyl-mercury in Newark Bay

The objectives of this project are to further investigate effects of methylmercury on embryonic development of the killfish, and on limb regeneration and molting in the fiddler crab. We have shown the production of many embroyological malformations in the former, and retardation of growth and inhibition of pigmentation in the latter.

J.S. Weiss, Dept. of Zoology, Rutgers the State Univ.
of New Jersey, Newark, New Jersey
FY 78; $22.8K FY 79; † FY 80;

Ocean Engineering Program

217. Quality Assurance for Water Quality Measurement

To develop "tools" for use in marine quality assurance effort such as reference guidelines to assist in development of quality assurance plans; and carry out intercomparison and intercalibration programs to audit the performance of the measurement systems, procedures, methods and standards in NOAA's programs.

R. Farland; OOE, Rockville, MD
FY 78; $75K FY 79; $20K FY 80;

Ocean Engineering Program (continued)

218. Measurement Standardization for Water Quality

To assess the capabilities of existing measurement standards and methodologies to meet the needs of marine waste quality and generate development where deficiencies are identified. NBS is tasked to investigate and demonstrate the tractability of ten selected oceanographic parameters to national and international standards.

R. Farland; OOE, Rockville, MD
Funds transferred to NBS
FY 78; $110K FY 79; † FY 80;

219. Water Quality Instrument Development

Water Qualty Instrument Development: to develop improved instrumentation for the long term monitoring of dissolved oxygen, the automated and in-situ measurement of trace metals in marine waters and sensors for detection oil presence in surface waters.

B. Pijanowski; OOE, Rockville, MD
FY 78; $53K FY 79; $140K FY 80;

220. Microbial Hazards Associated with Diving in Polluted Water

Assess the health to divers from polluted water and to develop techniques which will minimize any inherent dangers associated with this type of occupational exposure. Of particular concern is pollution from bacterial and viral pathogens as a result of sewage disposal practices. The New York Bight and the Anacostia River will be utilized as tow test sites.

D. H. Peterson; OOE, Rockville, MD
FY 78; $100K FY 79; $45K FY 80;

221. Technology Requirements for Ocean Pollution Measurement

To determine the technical requirements for an observational system in the Mid-Atlantic Bight region by analyzing NOAA program requirements. The project will lead to the conceptual design of an observational system based on technological elements as defined by this study.

L. Bivins; OOE, Rockville, MD
FY 78; † FY 79; 60K FY 80;

DEPARTMENT OF COMMERCE (NOAA)

Other Projects

222. Oil Spill Aging Tests

The goal of this investigation is to determine the optical spectra of a number of various crude oil samples as a function of aging under simulated ocean conditions. The results will be utilized in analysis of remotely sensed data from spacecraft for oil spill location and monitoring.

W.A. Hovis; National Environmental Satellite Service
FY 78; $37K FY 79; † FY 80;

223. Coastal Zone Scanner, Nimbus-G

The goal of the CZCS investigation is to determine how well ocean color measurements from an orbiting spacecraft can be utilized to determine water content. Aircraft investigations to date, simulating spacecraft sensing, have shown that pollutants and their movement in water can be detected in some cases and that increased algal concentrations as a result of nutrient enrichment can also be detected.

W.A. Hovis; National Environmental Satellite Service
FY 78; $20K FY 79; $40K FY 80;

224. Nitrous Oxide

Develop methodology for measuring nitrous oxides in seawater, and to begin such measurements at various localities in the world ocean. The overall goal is to determine what role the ocean plays in the global budget of nitrous oxides and related compounds, especially to determine if the oceans represent a source or sink for Nitrous Oxide.

J. Cline; ERL, PMEL
FY 78; $25K FY 79; † FY 80;

225. Data Management Suport For Marine Pollution Projects

This project provides data base management support for a variety of marine pollution programs including the Marine ecosystems analysis project, various Bureau of Land Mangement Outer continental Shelf studies and the NOAA Ocean Dumping program. The objectives of this project are to establish data reporting formats and ensure that the environmental data collected by these activities are submitted to a national data center in

Other Projects (continued)

a timely manner and in the prescribed format.

E. Law; EDIS, NODC, Wash., D.C.
FY 78; $52.7K FY 79; $90K FY 80;

226. Outer Continental Shelf Environmental Assessment Program (OCSEAP) Data Base Management Support

This project provides data management support to the Alaskan Outer Continental Shelf Environmental Assessment Program. Included are development of data formats, data inventories, tracking system operation, publish data catalogues and provide data to principal investigators.

J.J. Audet; EDIS, NODC, Wash., D.C.
FY 78; $64K FY 79; $118.5K FY 80;

Long Term Effects

At this time individual projects have not been identified.

FY 78; FY 79: $2,785K FY 80; $4,790K

Maritime Administration

227. A Study of the Economic and Environmental Viability of a U.S. Flag Toxic Chemical Incineration Ship

The purpose of this study is to project the future economic and environmental viability of operating one or more U.S. chemical waste incinerator ships.

Max Halensky
FY 78; * FY 79; † FY 80; †

228. Ozone Sewage Treatment System

Project intends to investigate simple net profit of existing sewage treatment plants aboard Great Lakes vessels to improve discharge quality. Project resulted in design of treatment system which incinerates solids in ships' boilers and treats liquids by mixing with ozone.

Funds transferred to DOD (Navy)
Craig Alig; U.S. Naval Ship; R&D Center
FY 78; * FY 79; † FY 80; †

DEPARTMENT OF DEFENSE

Funding Summary

(in thousands of dollars)

	FY 78	FY 79	FY 80
Army Corps of Engineers	$2365	$2112	$2087
Navy	$6437	$5209	$4478
Total	$8802	$7321	$6565

Army Corps of Engineers (COE)

229. Long-Term Aquatic Disposal Studies at Elliots Bay, WA, and Ashtabula, OH

Open water disposal studies to include a) benthic invertebrate population dynamics, b) PCB mobility, c) resource value of disposal site and d) associated sediment dynamics.

John D. Lunz, USACE, R&D; WES, Vicksburg, Miss.
FY 78; $50K FY 79; $218K FY 80; $182K

230. Monitoring of Selected Habitat Development Field Study Sites

Studies in the use of dredged material for habitat development.

L.J. Hunt; USACE, R&D; WES, Vicksburg, Miss., R&D
FY 78; $150K FY 79; $144K FY 80; $150K

231. Marsh/Estuarine Water and Ecological Modeling Techniques

Evaluation of various techniques for marsh/estuarine water quality and ecological modeling. Improved models will be validated.

R.W. Hall; USACE, R&D; WES, Vicksburg, Miss., R&D
FY 78; $125K FY 79; $175K FY 80; $200K

232. New Dredging Concepts

Program to develop procedures and techniques for applying recently developed dredging equipment to coastal, estuarine, reservoir and inland waterway shoaling problems.

E.C. McNair; USACE, R&D; WES, Vicksburg, Miss.
FY 78; $200K FY 79; $295K FY 80; $510K

233. Eductor Systems for Sandtrap Bypassing

Program to develop effective systems for bypassing sand at tidal inlets and other obstructions to littoral transport.

E.C. McNair; USACE, R&D; WES, Vicksburg, Miss.
FY 78; $788K FY 79; $150K FY 80; *

234. Erosion Control of Scour During Construction

Studies of techniques used to control scour and methods of predicting when and where scour will occur during constructions of structures in shallow water.

James R. Houston; USACE, R&D; WES, Vicksburg, Miss.
FY 78; $50K FY 79; $200K FY 80; $300K

235. Effect of Broken Armor Units on Breakwater Stability

Determination of the effects of broken concrete armor units on breakwater stability against wave attack. Study of criteria for initiating repairs to minimize maintenance costs.

D.D. Davidson; USACE, R&D; WRB, Vicksburg, Miss.
FY 78; $55K FY 79; $25K FY 80; $100K

236. Stability of Breakwaters

Program designed to develop models supported by experimental data from which the design of safe and economical rubble and/or artificial concrete armor unit breakwaters can be determined.

D.D. Davidson; USACE, R&D; WES, Vicksburg, Miss.
FY 78; $125K FY 79; $150K FY 80; $150K

237. Field Investigations of Wastewater Treatment by Overland Flow

Periodic water, soil, and grass samples are taken and analyzed for contaminant content to determine which treatment combinations provide maximum system performance.

C. R. Lee; USACE; WES, Vicksburg, Miss.
FY 78; $225K FY 79; $235K FY 80; $120K

238. Effect of Depth Dredging

Evaluation of the effectiveness of advance maintenance dredging in reducing dredging frequency and costs in coastal and inland channels and harbors.

M.J. Trawle; USACE, R&D; WES, Vicksburg, Miss.
FY 78; $263K FY 79; $150K FY 80; $50K

239. Assessment of Physical Model Sedimentation Predictions

A study to define and improve the confidence limits which can be placed on physical hydraulic model predictions of the effects of estuary modifications on sedimentation processes.

Joseph V. Letter, Jr.; USACE, R&D; WES, Vicksburg, Miss.
FY 78; * FY 79; $100K FY 80; $120K

240. Evaluation of Advective Effects During Catastrophic Flooding of Inland Coastal Regions

An investigation of the role of advective terms in the numerical simulation of long period, large amplitude water wave behavior in coastal regions. Includes studies of storm surges, extreme tides, tsunamis, etc.

H. Lee Butler; USACE, R&D; WES, Vicksburg, Miss.
FY 78: $20K FY 79; $25K FY 80; $5K

241. Definition of Cause of Navigation Channel Shoaling

Program to define and develop presently existing information on the cause of shoaling in estuaries and to establish guidelines on how to approach and solve navigation channel sedimentation problems.

Samuel B. Heltzel; USACE, R&D; WES, Vicksburg, Miss.
FY 78; $100K FY 79; $25K FY 80; $100K

242. Offshore Dredging Systems (Beach Nourishment Techniques)

Development of preliminary engineering designs for new systems and the modification of existing equipment to provide for efficient recovery of sand from offshore sources and placement on adjacent beaches.

T.W. Richardson; USACE, R&D; WES, Vicksburg, Miss.
FY 78; $170K FY 79; $200K FY 80; $100K

DEPARTMENT OF DEFENSE (COE)

243. Great Lakes Vessel Waste Facilities Study

Survey of Great Lakes ports to determine availability and loading of shoreside disposal facilities for ship generated wastes.

Clayton Bartley; USACE; ERG, Ann Arbor, MI
FY 78; $44K FY 79; $20K FY 78;*

Navy

244. Integrated Waste Treatment

Development of central processing equipment and technologies and related waste flow monitors and controls for shipboard integrated waste stream systems.

Stanley M. Finger; David Taylor R&D; Annapolis, MD
FY 78; $2,100K FY 79; $1,900K FY 80; $1,300K

245. Sewage Treatment

Development of methods to control toxic and odorous gases in collection, holding and transfer and oil/water separator systems. Reduce volumetric loading requirements for sewage and multi-waste incinerators by a factor of three and extend material lifetime.

Stanley M. Finger; David Taylor R&D; Annapolis, MD
FY 78; $230K FY 79; $160K FY 80; $150K

246. Oily Waste Treatment

Development of improved oil/water separator technologies and monitoring techniques.

Stanley M. Finger; David Taylor R&D; Annapolis, MD
FY 78; $1,300K FY 79; $1,500K FY 80; †

247. Health Criteria Development

Development of biomedical data for Navy unique materials or chemicals which will minimize impacts on Navy Mission.

L.E. Doptis, Naval Medical R&D Command; NNMC, Beth., MD
FY 78; $556K FY 79; $390K FY 80; $749K

248. Dry Dock Wastewater Treatment

Development of treatment technology for processing dry dock wastewater discharges.

R.D. Saam, Naval Facilities Engineering Command, Alex. VA
FY 78; $200 FY 79; $105K FY 80; $250K

249. Berths and Docks Sedimentation Reduction

Development of cost effective techniques for sedimentation reduction and/or the reduction of dredging requirements. Studies of natural physical cycles and periodic resuspension are included.

R.J. Malloy; Naval Facilities Engineering Command, Alex. VA
FY 78; $107K FY 79; $135K FY 80; $150K

250. Toxic Substances

Development of treatment processes for chemicals produced by Navy operations such as phenolics, mercuric compounds, organic solvents, etc.

D.B. Chan; Naval Facilities Engineering Command, Alex. VA
FY 78; † FY 79; $60K FY 80; $150K

251. Integrated Water/Wastewater Systems

Development of techniques for wastewater reclamation.

D.B. Chan; Naval Facilities Engineering Command, Alex. VA
FY 78; $115K FY 79; $75K FY 80; $200K

252. Shore Based Ballast Oil/Water Separator

Development of pierside equipment to treat contaminated ballast wastewaters from tankers and ships.

D.H. Jermain, Naval Supply Systems Command, Wash. D.C. FY
FY 78; $353K FY 79; $50K FY 80; †

253. Water Monitoring Techniques for Ordinance Compounds

Development of instrumentation for effective monitoring of very low concentrations of explosive and propellant constituents in process water.

C.A. Heller, NAVSEA, Wash., D.C.
FY 78; $120K FY 79; $180K FY 80; $200K

DEPARTMENT OF DEFENSE (NAVY)

254. Water Purification

Development of techniques and equipment for the removal of explosive components from plant process water.

J.C. Hoffsommer, NAVSEA, Wash., D.C.
FY 78; $186K FY 79; $232K FY 80; $139K

255. Marine Environmental Quality Assessment

Development of methods and instruments for ascertaining and predicting marine environmental quality.

S. Yamamoto, Marine Env. Qual. Assess., Wash., D.C.
FY 78; $805K FY 79; $322K FY 80; $920K

256. Marine Biology

Technology for assessing and quantifying biological aspects of marine environmental quality wherever the Navy operates.

Rita R. Colwell, Office of Naval Res., Arl., VA.
FY 78; $65K FY 79; * FY 80; $170K

257. Underwater Explosion Tests

Studies to develop guidelines which minimize harmful environmental effects from underwater explosions.

G.A. Young, Naval Sea Sys. Comm., Wash., D.C.
FY 78; $300K FY 79; $100K FY 80; $100K

DEPARTMENT OF ENERGY

Funding Summary

(in thousands of dollars)

	FY 78	FY 79	FY 80
Regional Programs	$6,652	$4,926	$4,782
Ocean Thermal Energy(OTEC)	$1,406	$2,094	$2,815
Strategic Petroleum Oil Reserve Office (SPRO)	$4,513	$6,726	$4,500
Other Programs	$3,099	$3,130	$3,130
Totals	$15,670	$16,876	$15,227

Regional Programs

258. Effects of Sublethal Levels of Oil on the Behavior of Aquatic Animals

Effects of oil fractions on the behavior of marine snails and lobsters.

Helen McCammon; DOE, Office of Health & Env. Res.
FY 78; $59K FY 79; transferred to EPA

259. Behavioral Measure of Environmental Stress Marine Fishes & Invertebrates

Effects of sub-lethel levels of petroleum hydrocarbons on the blue crab and on finfish.

Helen McCammon; DOE, Office of Health & Env. Res.
FY 78; $27K FY 79; transferred to EPA

260. Biogeochemistry of Petroleum Components at the Sediment Water Interface

Determine prinicpal processes that control the distribution of hydrocarbons; clarify the role of benthic animals in changing the composition of hydrocarbons and redistributing hydrocarbons at the mud-water interface.

Helen McCammon; DOE, Office of Health & Env. Res.
FY 78; $69K FY 79; $70K FY 80;

261. Fatty Acid Ecology and Plankton Communities

Assess the use of fatty acid levels in marine communities as an

Regional Programs (continued)

indicator of populations stressed by pollutants.

Helen McCammon; DOE, Office of Health & Env. Res.
FY 78; $39K FY 79; $39K FY 80;

262. Phytoplankton Growth, Dissipation and Succession in Estuarine Environments

Study of the dynamics of phytoplankton growth and succession in a natural estuarine system.

George W. Saunders; DOE, Office of Health & Env. Res.
FY 78; $136K FY 79; $140K FY 80;

263. Effects on Energy Related Activities of Chesapeake Bay

Effects of power plant effluents on phytoplanktonic and bacterial processes. Experimental measures of the effects of selected pollutants (heat, acid, biocides, hydrocarbons, heavy metals).

George W. Saunders; DOE, Office of Health & Env. Res.
FY 78; $130K FY 79; $130K FY 80;

264. Accumulation & Transport of Minerals by Marine Protozoa

Evaluation of capacity of certain protozoa to take up mineral particles in the size range of silts and incorporate them into their shells.

George W. Saunders; DOE, Office of Health & Env. Res.
FY 78; $40K FY 79; * FY 80; *

265. Effects of Environmental Stresses on the Species Composition of Photoplankton Populations

Effects of chlorine, temperature, and metal additions on community parameters of large phytoplankton cultures in a steady state.

D. Heyward Hamilton Jr.; DOE, Office of Health & Env. Res.
FY 78; $100K FY 79; $86K FY 80;

266. Comparative Evaluation of Effects of Ozonated and Chlorinated Thermal Discharges

Side-by-side study of the effects of ambient, chlorinated and ozonated effluents on typical estuarine and freshwater fishes.

D. Heyward Hamilton, Jr.; DOE, Office of Health & Env. Res.
FY 78; $102K FY 79; $18K FY 80; *

Regional Programs (continued)

267. Distribution of Marine Birds on Georges Bank and Adjacent Waters

Provide a quantitative statement of the distribution in time and space of seabirds in the Northwest Atlantic; This will permit a direct assessment of large scale impacts due to oil exploration, extraction and transport.

D. Heyard Hamilton, Jr.; DOE, Office of Health & Env. Res.
FY 78; $67K FY 79; $67K FY 80;

268. Transport and Transfer Rates in Waters off the Continental Shelf

Using decay characteristics of natural and anthropogenic isotopes, transport, residence time, and flushing characteristics of continental shelf water masses are determined.

Arnold B. Joseph; DOE, Office of Health & Env. Res.
FY 78; $423K FY 79; $473K FY 80;

269. Biogeochemistry of Trace Metals in Chesapeake Bay

An analysis of biogeochemical processes controlling the distribution of mercury, cadium, and copper in intersititial water of estuarine sediments.

Arnold B. Joseph; DOE, Office of Health & Env. Res.
FY 78; $53K FY 79; $53K FY 80;

270. Radioelement Studies in the Ocean

A study of the time-spatial oceanic distribution and interactions of radioisotopes and trace elements in order to model biogeochemical processes affecting the fate of pollutants.

Arnold B. Joseph; DOE, Office of Health & Env. Res.
FY 78; $575K FY 79; $560 FY 80;

271. Distribution of Some Chemical Elements Between Particulate & Dissolved Phases in Sea Water

Isotopic tracers, stable element analyses, and non-conservative trace elements in particulate phase are analysed to develop insight into cycling mechanisms in the sea.

Arnold B. Joseph, DOE, Office of Health & Env. Res.
FY 78; $125K FY 79; $125K FY 80;

Regional Programs (continued)

272. Trace Elements in Natural Waters

Members of the uranium decay series and selected trace metals are followed in soil profiles, ground water, streams, estuarine waters and deposits to elucidate sources, sinks and kinetics of transfer.

Arnold B. Joseph; DOE, Office of Health & Env. Res.
FY 78; $65K FY 79; $85K FY 80;

273. Plutonium & Cesium Radionuclides in the Hudson River Estuary

Analysis of sediment samples for cesium, manganese and plutonium as an indicator of sediment transport and accumulation patterns of these elements.

Arnold B. Joseph, DOE, Office of Health & Env. Res.
FY 78; $65K FY 79; $70K FY 80;

274. Analysis of Samples of Ocean Water

This contract is for the maintenance of calibrated interlaboratory capability for analysis of low-level radioisotopes.

Arnold B. Joseph, DOE, Office of Health & Env. Res.
FY 78; $5K FY 79; $5K FY 80.

275. Management Southeast Continental Shelf

Logistical (ship time) and managerial support for the South Atlantic Bight (SAB) program.

Helen McCammon; DOE, Office of Health & Env. Res.
FY 78; $211K FY 79; $230K FY 80;

276. Ecology of Subtropical, Shallow-Water Environments

An examination of the sources, sinks, and dynamics of metal binding organic matter in estuarine and coastal water. The program is focused on CU++ binding and transport phenomena.

D. Heyward Hamilton, DOE, Office of Health & Env. Res.
FY 78; $60K FY 79; $43K FY 80;

277. An Inner Shelf Sediment Transport Experiment (INSTEP)

A multi-agency analysis of coastwise and coast-normal suspended sediment flux to illuminate the processes determinng patterns of

Regional Programs (continued)

sea floor erosion and sedimentation.

Arnold B. Joseph; DOE, Office of Health & Env. Res.
FY 78; $150K FY 79; $150K FY 80;

278. Continental Shelf Processes Affecting the Oceanography of the South Atlantic Bight

Hydrological and current meter data are being developed and analyzed to provide predictive understanding of on-shore and off-shore transport and circulation processes in the South Atlantic Bight (SAB).

Arnold B. Joseph; DOE, Office of Health & Env. Res.
FY 78; $132K FY 79; $156K FY 80;

279. Trace Element Geochemistry of the South Atlantic Bight

An analysis of the rate and modes of input of trace elements to the Georgia Bight continental shelf environment and their residence time.

Arnold B. Joseph; DOE, Office of Health & Env. Res.
FY 78; $98K FY 79; $100K FY 80;

280. Continental Shelf Processes Affecting the Oceanography of the South Atlantic Bight

An evaluation of the significance of advective on-shelf transport, particularly the role of the Gulf Stream intrusions for nutrient budgets in the South Atlantic Bight. (SAB)

Arnold B. Joseph; DOE, Office of Health & Env. Res.
FY 78; $178K FY 79; $238K FY 80;

281. Effect of Cyclic Temperature on Larvae of Marine Invertebrates

A continuing evaluation of the effects of cyclic temperature on larval development of estuarine and continental shelf species of marine invertebrates.

D. Heyward Hamilton, Jr.; DOE, Office of Health & Env. Res.
FY 78; $55K FY 79; $75K FY 80;

282. Flow of Energy & Cycling Elements and Effects of Environmental Change in Estuarine & Nearshore Oceanic Ecosystems

Multidisciplinary study of cycling and effects of nuclide, metal and on the pollutants in estuarine environments.

George W. Saunders; DOE, Office of Health & Env. Res.
FY 78; $418K FY 79; $418K FY 80;

283. Biological Processes in the Water Column of the South Atlantic Bight

A co-operative SAB program directed at evaluation of the biological consequences of the transport processes in the physical oceanography portions of this program.

George W. Saunders; DOE, Office of Health & Env. Res.
FY 78; $85K FY 79; $90K FY 80;

284. Flux of Energy and Materials Through The Pelagic Portion of the Continental Shelf Ecosystem

Development of indices of condition that may be used to detect stress of changes introduced by energy-related technology on the continental shelf ecosystem.

George W. Saunders; DOE, Office of Health & Env. Res.
FY 78; $132K FY 79; $148K FY 80;

285. Geochemistry of Uranium & Thorium Series Nuclides and of Plutonium in the Gulf of Mexico

An analysis of the distribution and chemical behavior of uranium, thorium, and plutonium in sediments and water of Gulf of Mexico and some of its major fresh water inputs.

Arnold B. Joseph; DOE, Office of Health & Env. Res.
FY 78; $80K FY 79; $90K FY 80;

286. Coordination: Gulf of Mexico Studies

A managerial support program for eventual development of a DOE program in the Gulf of Mexico, building on Bureau of Land Management and Strategic Petroleum Reserve efforts.

Helen McCammon; DOE, Office of Health & Env. Res.
FY 78; $10K FY 79; $10K FY 80;

287. Marine Geochemistry Research

A program oriented toward the development and application of geochronological techniques for the analysis of pollution history recorded in sedimentary profiles and toward heavy

Regional Programs (continued)

metal and nuclide transport processes.

Arnold B. Joseph; DOE, Office of Health & Env. Res.
FY 78; $75K FY 79; $75K FY 80;

288. Chemical & Geochemical Studies of the Coast of Washington

Develop a scientific base for predicting and testing the behavior and fate of various trace chemicals in coastal and estuarine areas.

Arnold B. Joseph; DOE, Office of Health & Env. Res.
FY 78; $61K FY 79; $65K FY 80;

289. Distribution & Fate of Biogenic & Petroleum-Derived Substances in the Marine Environment

An analysis of the distribution of organic substances (particularly hydrocarbons) in sediment to differentiate hydrocarbons originating from naturally occurring sources from those introduced into the ocean by anthropogenic processes.

Helen McCammon; DOE, Office of Health & Env. Res.
FY 78; $125K FY 79; $125K FY 80;

290. Hydrogeochemistry of Eniwetok

Description and quantitative understanding of hydrology and groundwater geochemistry of Eniwetok Atoll and the use of these results to interpret groundwater radioactivity in terms of leaching, cycling, transport and residence time models both for the groundwater soil-vegetation system of specific locales and for the atoll system as a whole.

Helen McCammon; DOE, Office of Health & Env. Res.
FY 78; $65K FY 79; $65K FY 80;

291. Management: MID-Pacific Marine Laboratory -- Marshall Islands

A program for management support of DOE research and monitoring activities in the Marshall Islands.

Helen McCammon; DOE, Office of Health & Env. Res.
FY 78; $200K FY 79; $210K FY 80;

292. Fission & Alpha-Track Study of Biogeochemistry of Plutonium, Americium and Uranium

Objective is definition of the concentration and distribution of

Regional Programs (continued)

alpha emitters (plutonium, americium, and uranium) in carbonate materials from Bikini and Eniwetok Atolls.

Helen McCammon; DOE, Office of Health & Env. Res.
FY 78; $23K FY 79; * FY 80; *

293. Circulation & Chemistry of the Eniwetok Atoll Lagoon

A study of C, N, and P budgets for tropical lagoon systems, utilizing Eniwetok.

Arnold B. Joseph; DOE, Office of Health & Env. Res.
FY 78; $50K FY 79; * FY 80; *

294. Cycling of Transuranic Radionclides in the Columbia River Estuary & the North Pacific Ocean

To characterize the concentrations and distributions of transuranics in sediments of the Columbia River and its outward zone.

Arnold B. Joseph; DOE, Office of Health & Env. Res.
FY 78; $130K FY 79; $130K FY 80;

295. Hydrocarbon Studies in Puget Sound & Off The Washington Coast

An analysis of the naturally occurring patterns of hydrocarbons, the extent of contamination by fossil fuel hydrocarbon through parts of the marine food web.

Arnold B. Joseph; DOE, Office of Health & Env. Res.
FY 78; $170K FY 79; transferred to EPA

296. Studies on the Concentration of Iron-55 in the South Pacific Ocean

Analysis of selective concentration of iron - 55 in seawater, zooplankton, fish and sediments.

Arnold B. Joseph; DOE, Office of Health & Env. Res.
FY 78; $36K FY 79; * FY 80; *

297. Physical Oceanography and Sediment Transport on the Washington Continental Shelf

The objective is to test predictive models to characterize the current field, wave motion and associated movement of sediment on the

Regional Programs (continued)

continental shelf.

Arnold B. Joseph; DOE, Office of Health & Env. Res.
FY 78; $214K FY 79; $226K FY 80;

298. Trace Metal Associations in Sub-Arctic Fjord Environments

The identification and characterization of physical and chemical processes responsible for transporting, immobilizing, remobilizing and transferring between constituent phases, heavy metals in Alaskan ecosystems, particularly fjords.

Arnold B. Joseph; DOE, Office of Health & Env. Res.
FY 78; $58K FY 79; $60K FY 80;

299. Chlorinity, Temperature, Density Maintenance for W. Coast Contractors

A logistics-support contract for maintenance of a CTD system in use in DOE Pacific Northwest research programs.

Helen McCammon; DOE, Office of Health & Env. Res.
FY 78; $7K FY 79; $10K FY 80;

300. Mesoscale Studies of Flow Regimes & Fluxes of Particulate Matter

A program to provide measurement methodolgies for and distributional patterns of suspended particulate matter for the Northwest continental shelf.

George W. Saunders; DOE, Office of Health & Env. Res.
FY 78; $120K FY 79; $130K FY 80;

301. Great Lakes - Fate of Pollutants Related to Energy Conversion

The objective is quantitative description of the biogeochemical processes governing the transport, fate and biological availability of energy-related pollutants released to the Great Lakes.

Helen McCammon; DOE, Office of Health & Env. Res.
FY 78; $435K FY 79; transferred to EPA

302. Nutrient Enrichment and Eutrophication of Lake Michigan

An experimental and observational analysis of the phytoplankton dynamics of Lake Michigan oriented toward models of the nature of limiting growth factors.

George W. Saunders; DOE, Office of Health & Env. Res.
FY 78; $96K FY 79; $96K FY 80;

Regional Programs (continued)

303. Oceans - Fate of Nuclear Pollutants Disposal and Dumping

The objective is development of understanding of processes that govern the physical, chemical and biological behavior of plutonium, americium, and other transuranic elements under oceanic conditions associated with waste disposal.

Arnold B. Joseph; DOE; Office of Health & Env. Res.
FY 78; $40K FY 79; $40K FY 80;

304. Great Lakes Pollutant Transport Processes

Model parameterization for such processes as: (a) atmospheric input in the form of wet and dry deposition at the air-water interface (b) resuspension and redistribution of polluted bottom sediments and (c) wind driven vertical mixing and lateral transport.

Helen McCammon; DOE Office of Health and Environmental Research
FY 78; $179K FY 79; transferred to EPA

305. Great Lakes-Biological Effects of Energy Related Pollutants

The lines of research pursued under this program include (1) biological processing and bioaccumulation of toxic materials, (2) interaction between thermal plume exposure, contaminant bioaccumulation in fish and transfer to man via the food chain, (3) population level impacts from impingement and (4) system level impacts on community structure and function.

Helen McCammon; DOE; Office of Health and Environmental Research
FY 78; $397K FY 79; transferred to EPA

306. Great Lakes Research Vessel Support

This subprogram provides operational support for the ANL (Argonne National Laboratory) Great Lakes Research Program which investigates the transport, fate, and effects of fossil-fuel and nuclear pollutants in the Great Lakes.

Helen McCammon; DOE; Office of Health and Environmental Research
FY 78; $52K FY 79; transferred to EPA

307. Fate and Effects of Hydrocarbons in California Coastal Environment

This project investigates the fate and effects of petroleum hydrocarbons on the California coastal environment. It responds to increased offshore oil drilling in southern California, particularly the Santa Barbara Channel.

Helen McCammon; DOE; Office of Health and Environmental Research
FY 78; $83K FY 79; transferred to EPA

308. Effects of Petroleum Hydrocarbons in Marine Ecosystems (Puget Sound)

Objectives of this program are to identify potential population and community response parameters and provide estimates of changes in these parameters in the field. Emphasis is placed on identification of parameters for which statistically valid estimates can be made at specific field sites in proximity to petroleum industry operations.

Helen McCammon; DOE; Office of Health and Environmental Research
FY 78; $83K FY 79; transferred to EPA

309. Long-term Hydrocarbon Effects on Organisms and Communitites in NW Coastal Ecosystems

This research program has been designed to provide data necessary to access effects of long-term exposure to petroleum hydrocarbons on selected organisms and communities from the northwest U.S. coastal ecosystems.

Helen McCammon; DOE; Office of Health and Environmental Research
FY 78; $165K FY 79; transferred to EPA

310. Transfer Properties of Radionuclides from San Onsofre, California Powerplant

Determination of the ultimate capacity for waste disposal of a coastal environment like that near the San Onofre Nuclear Power Plant.

D.H. Hamilton; Div. Biomed. & Env. Res.
FY 78; $25K FY 79; $25K FY 80;

311. Effect of Habitat Conditions on Spatial Parameters of Shorebird Population

Use shorebirds as indicators of environmental quality based on the fact that shorebird species differ in their habitat use strategies.

D.H. Hamilton; Div. Biomed. & Env. Res.
FY 78; $74K FY 79; † FY 80; †

Ocean Thermal Energy Conversion (OTEC) Program

312. Ocean Currents and Thermal Observations

A program for development and analysis of a comprehensive oceanographic data base for OTEC design and siting.

G.W. Saunders, DOE; Office of Health and Environmental Research
Funds transferred to DOC/NOAA/AOML;
FY 78; $309K FY 79; $480K FY 80;

313. The Fate of Chlorine in Seawater

Identification of products formed during the chlorination of sea water, the kinetics of their formation and degradation, and the major variables affecting these processes.

D. Heyward Hamilton, Jr.; DOE; Office of Health and Environmental Research
FY 78; $33K FY 79; $33K FY 80;

314. Physical and Biological-Ecological Oceanographic Measurement Program for all OTEC Regions

A shipboard measurment program for the provision of baseline ecological data for Hawaii, Gulf of Mexico, Puerto Rico, and South Atlantic OTEC regions.

G.W. Saunders; DOE; Office of Health and Environmental Research
FY 78; $360K FY 79; $689K FY 80;

315. Satellite Data Applied to OTEC Needs (Remote Sensing)

Using satellite imagery for high sensitivity, high-resolution temperature data, geostrophic and other calculations will be made to determine the reliability of the thermal resource in various potential OTEC regions.

G.W. Saunders; DOE; Office of Health and Env. Res.
Funds transferred to DOC/NOAA/AOML
FY 78; $107K FY 79; $181K FY 80;

316. Toxicity and Impingement-Entrainment Impact Studies

Experiments and data measurement activities for monitoring methodologies and instrumentation for EIA/EIS OTEC evaluation.

G.W. Saunders; DOE; Office of Health and Env. Res.
FY 78; $100K FY 79; $150K FY 80;

OTEC Program (continued)

317. Marine Research Boat Operation

Logistical support for University of Puerto Rico research vessel.

G.W. Saunders; DOE, Office of Health & Env. Res.
FY 78; $40K FY 79; $40K FY 80;

318. Marine Pollution Studies

An evaluation of the ecological effects of the proposed deployment of an OTEC prototype facility in coastal Puerto Rico.

G.W. Saunders; DOE, Office of Health & Env. Res.
FY 78; $410 FY 79; $465 FY 80;

319. Environmental Effects of Offshore Production in the Subtropics and Tropics

Potential impacts of OTEC facilities on algae and invertebrates will be examined by means of field investigations and microcosm experiments.

Thorhaug;
FY 78; $47K FY 79; $56K FY 80;

Strategic Petroleum Reserve Office (SPRO)

320. Brine Disposal Analysis/DOE Strategic Petroleum Reserve Program

To provide site specific information to determine the effects of disposal of saturated brines from salt dome oil storage facilities.

Walter H. Delaplane, Jr.; Strategic Petroleum Reserve; DOE
Funds transferred to DOC/NOAA/AOML
FY 78; $2500K FY 79; $4426K FY 80;

321. Environmental Impact Statement Preparation for Brine Disposal

A program directed toward satisfaction of all aspects and requirements of NEPA of the Strategic Petroleum Reserve Project.

Walter H. Delaplane, Jr.; Strategic Petroleum Reserve,; DOE
FY 78; $2013K FY 79; $2300K FY 80;

Other Programs

322. Seabed Disposal Program

Development and proof of capability of disposing high-level radioac-

Other Programs (continued)

tive wastes in the submarine geologic formations of the deep oceans.

D. Heyward Hamilton,Jr.; DOE, Office of Health & Env. Res.
FY 78; $3050K FY 79; $3100K FY 80;

323. Partial Support of the University National Oceanographic Laboratory System (UNOLS) Office

A participating contribution to the NSF based UNOLS system.

Arnold B. Joseph; DOE, Office of Health & Env. Res.
FY 78; 19K FY 79; † FY 80; †

324. Partial Support-Ocean Science Board

Partial support for the ocean science activities of the Ocean Affairs Board of the National Academy of Science.

Helen McCammon; DOE, Office of Health & Env. Res.
FY 78; $30K FY 79; $30K FY 80;

ENVIRONMENTAL PROTECTION AGENCY

Funding Summary

(in thousands of dollars)

	FY 78	FY 79	FY 80
Health Effects Studies	$ 619	$ 676	$ 550
Pollutant Transport Studies	6	6	-
Oil & Hazardous Materials Prevention and Clean-up Research	3,058	2,334	2,330
Great Lakes Studies	3,722	3,766	3,689
Marine Ecology Studies (Corvallis Lab.)	1,666	1,422	1,475
Marine Ecology Studies (Gulf Breeze Lab.)	5,300	6,987	10,089
Marine Ecology Studies (Narragansett Lab.)	4,577	4,376	5,200
EPA Energy/Environment Interagency Program			
NOAA/DOC	2,195	2,315	2,950
NIEHS/HEW	180	180	250
FWS/DOI	900	900	650
NBS/DOC	100	100	-
DOE	240	242	-
Great Lakes National Program	3,728	3,728	3,200
National Water Quality Monitoring Programs	1,300	1,300	1,300
Evaluation of Radioactive Waste Dump Sites	545	830	900
Ocean Dump Site Evaluation Program	1,500	1,500	1,700
Chesapeake Bay Program	5,353	4,900	4,900
DOE Transfer to EPA	-	864	864
TOTAL	34,989	36,426	40,047

NOTE: Budget figures given for the laboratories represent the total laboratory budget assignable to marine research and includes overhead, support services, etc. that are not necessarily reflected in reported individual project costs.

Health Effects Studies (HERL/Cincinnati)

325. Phage Resistance as a Means of Separating Human and Animal E. coli Strains and Defining Colonization Potentials

This project examines the relationship between the coliphage biotypes of E. coli strains and their ability to colonize the gastrointestinal tracts of warm-blooded animals, and is developing a technique to distinguish between human and animal fecal E. coli strains by coliphage biotyping.

Paul S. Cohen; Dept. of Microbiology, Univ. of Rhode Island, Kingston, RI
FY 78; $25K FY 79; † FY 80; †

326. Development of Marine and Fresh Recreational Water Quality Criteria

The objective of this project is to develop health effects, and water quality criteria for marine and fresh recreational water. The anticipated criteria will be mathematical relationships of some chemical or microbiological indicators of the quality of the water to the risks of illness (or symptomology) by type and severity. The approach taken has been to conduct prospective epidemiological studies at appropriate bathing beaches in which information on symptomology (and where possible specific disease entities) and demography are obtained from the beach going population.

Victor J. Cabelli, USEPA, West Kingston, Rhode Island, 02892
FY 78; $143K FY 79; $143K FY 80; $143K

327. Enumeration of Shigella in Polluted Waters

The objectives of this project are to develop reliable culture procedures and techniques to recover and enumerate Shigella in polluted water.

Vincent P. Olivieri; The John Hopkins Univ., School of Hygiene and Public Health, Baltimore, MD
FY 78; * FY 79; † FY 80; †

328. Yersinia enterocolitica: Reservoirs and Impact in Human Disease

The objectives are: refinement of a new differential medium to provide a sensitive method for detection and qualification of *Yersinia enterocolitica*; elucidation of the ecology of *Y. enterocolitica*; and clarification of the relationship between the water strains of Y. enterocolitica and the strains of animal and human origin.

M.J. Pickett; Univ. of California, Los Angeles, Ca.
FY 78; * FY 79; † FY 80; †

329. The Virus Carriage Status in the Hard Shell Clam: Field Test in Support of Epidemilogic Studies

The purpose of the study is to apply a method developed for the recovery of enteroviruses from clams to a determination of the virus associated health hazard in humans following ingestion of raw clams.

T.G. Metcalf; Univ. of New Hampshire, Durham, NH
FY 78; $25K FY 79; † FY 80; †

Health Effects Studies (HERL/Cincinnati) (continued)

330. Enumeration Methods for Health Effects Water Quality Indicators

The objective is to evaluate existing or develop new methods for the enumeration of microbial pathogens and indicators, potentially important in the development of health effects critera for marine and fresh recreational waters.

Victor J. Cabelli, USEPA, West Kingston, Rhode Island, 02892
FY 78; $222K FY 79; $222K FY 80; $222K

331. Quantitation of the Desporption and Recovery of Bacteria from Sediment Particulate Matter in the Ocean

The objective of this study is to provide a reliable reproduceable method for recovering viable microorganisms from marine particulate matter. The approach has been to establish a standard absorption technique and then to test various physical and chemical means for quantitatively removing the absorbed organisms from the model system.

Carol D. Ritchfield; Center for Coastal and Environmental Studies Marine Science Div., Rutgers Univ., New Brunswick, NJ
FY 78; $36K FY 79; $36K FY 80; †

332. Epidemiological Microbiology Study on Health Effects Among Swimmers at the Lake Pontchartrain in New Orleans

The purpose of this study is to measure the health effects of swimming in subtropical recreational waters. It represents one approach to the development of water quality criteria for the recreational waters around all the nation's cities. Specifically, the objectives are to measure the health effects of swimming under various conditions and levels of water pollution.

Virginia K. Kisanes; Tulane School of Public Health and Tropical Medicine, New Orleans, LA
FY 78; $60K FY 79; † FY 80; †

Pollutant Transport Studies (Athens Laboratory)

333. Development of Dynamic Two-Layer Model for Stratified Estuaries

The primary objective of the project is to develop a two-layer model of estuarine hydrodynamics and water quality. The model is to be compatible for linkage with appropriate river and loading models to provide a basin planning methodology in coastal areas. A second objective is to test the estuary model on a field data

Pollutant Transport Studies (Athens Laboratory)(continued)

set to define its performance characteristics.

Stanley G. Chamberlain; Raytheon Oceanographic & Environmental Services, Newport, RI
FY 78; $6K FY 79; $6K FY 80; †

Prevention and Clean-up Research (ERL/Cincinnati)

334. OCS Pipeline Construction and Operation: Potential Environmental Problems and Recommendations for Mitigation of Impacts

The purpose of this research is to assemble the available information on the potential environmental effects of submarine pipelines utilized to transport oil and/or natural gas from the outer continental shelf to shore. Preliminary recommendations of practices to minimize environmental problems will be included.

Irvin M. Waitman; New England River Basins Commission, 53 State St., Boston, MA 02109
FY 78; $67K FY 79; $59K FY 80; *

335. Field Verification of Pollution Control Rationale for Offshore Platforms

The purpose of this project is to conduct a field study for offshore oil and gas producing facilities including sampling, analysis and characterization of all appropriate unit processes. The results of this sampling program will be evaluated and compared to the pollution control recommendations developed by Exxon Research & Engineering Company.

Bart Tuffly; Rockwell International - Rocketdyne Div., 2421 W. Hillcrest Drive, Newbury Park, CA 91320
FY 78; $233K FY 79; $100K FY 80; †

336. Multiagency Project for Oil Spill Equipment Evaluation Phase II

Performance evaluation of commercialy available spill cleanup equipment. Performance testing of actual equipment at OHMSETT. Equipment will be selected and its throughput efficiency, oil recovery efficiency and oil recovery rate will be determined for two oil types under a variety of current and wave conditions. A final report will be prepared.

Robert Ackerman; Mason & Hanger - Silas Mason Co., Inc., OHMSETT, USEPH, Leonardo, NJ
FY 78; $50K FY 79; $75K FY 80; †

ENVIRONMENTAL PROTECTION AGENCY

Prevention and Clean-up Research (ERL/Cincinnati)(continued)

337. Evaluation of Spill Prevention Practices

The purpose of this project is to evaluate the effectiveness of suggested spill prevention systems in reducing the number of reportable oil spill incidents of the This information will be generated by reviewing the spill incident history of predesignated facilities before and after the effective date of the Spill Prevention and Control Plan.

Bart Tuffly; Rockwell International - Rockdyne Div., 2421 W. Hillcrest Drive, Newbury Park, CA 91320
FY 78; $75K FY 79; $100K FY 80; $100K

338. Pollution Assessment of Advanced Oil and Gas Recovery Program

The purpose of this research project is to obtain environmental data in sufficient detail from ongoing ERDA studies so that variations of the composition of discharges from tertiary oil recovery can be correlated over time with formation characteristics and process variables.

Dr. Bart Tuffly; Rockwell International - Rockdyne Div., 2421 W. Hillcrest Drive, Newbury Park, CA 91320
FY 1978; $125K FY 79; † FY 80; †

339. Environmental Guidelines for Onshore Impact of Offshore Petroleum Development

To carry out a series of workshops for State and local planning officials to provide them with methodologies and information pertaining to the identification of the onshore impact of outer continental shelf petroleum development and the siting of facilities associated with that development.

Jack Farlow, USEPA, Edison, NJ 08817
FY 78; $125K FY 79; $100K FY 80; $100K

340. Remote Petroleum Oil Detection

The purpose of this project is to evaluate current oil detection monitors, select two or more oil in water monitors utilizing different detection concepts and develop and demonstrate computer hard and software necessary for integrating the outputs of each monitor into terms that are directly proportional to the concentration of oil in water.

Bart Tuffly; Rockwell International - Rockdyne Div., 2421 W.
Hillcrest Drive, Newbury Park, CA 91320
FY 78; * FY 79; † FY 80; †

341. Petroleum Pipeline Leak Detection

This project is intended to define the state-of-the-art of pipe line leak detection and to develop an improved technique or set of techniques to advance this area of technology.

G.H. Burghart; Science Applications Inc., McLean, VA 22102
FY 78; † FY 79; $25K FY 80; †

342. Methods Manual for Oil Spill Source Identification

The objective of this project is to develop a comprehensive manual of proven analytical methods for the quantitation, characterization and source identification of petroleum oils that are spilled into the environment.

Michael Gruenfeld; USEPA, Edison, NJ 08817
FY 78; $10K FY 79; $10K FY 80; $10K

343. Method of Quantitation for Petroleum Oils in Water

The objective of this project is to develop a method for quantitating petroleum oils that are dispersed in water, or that have separated from water dispersion following sample collection.

Michael Gruenfeld; USEPA, Edison, NJ 08817 FY 78; $10K
FY 78; $10K FY 79; $10K FY 80; $10K

344. Oil Slick Dispersal Mechanics

This study examines the effect of physical processes (wind, waves, currents) on the degree and kind of oil dispersion.

Leo McCarthy; U.S. Environmental Protection Agency
FY 78; $25K FY 79; † FY 80; †

345. Evaluation of the Stability Characteristics of Oily Water Emulsions

The oily waste treatment facility in Port Valdez, Alaska consists of gravity separation, chemical assisted dissolved air flotation and gravity separation. This facility is considered by many to represent the latest in the state-of-the-art for oily waste treatment. This project will characterize the influent and effluent of each unit process in order to obtain a quantitive evaluation of the performance and effectiveness of the oily treatment facility to remove dissolved and suspended oil.

Bart Tuffly; Rockwell International-Roccketdyne Div.
FY 78; $80K FY 79; † FY 80; †

346. Field Kit for Characterization of Oil/Water Separation Fluids

The objective of the project is to evaluate in the laboratory and subsequently in field situations test methods for characterizing oilbrine effluents from offshore exploration and production platforms. A field test kit including all equipment, materials, supplies and detailed operating instructions will be prepared and delivered to EPA.

J.H. Smith; SRI International, Menlo Park, CA 94125
FY 78; $66K FY 79; $38K FY 80; †

347. Oil Spill Response Scenarios for Remote Arctic & Sub-Arctic Environments

The purpose of this study is to develop a series of oil spill response scenarios for remote arctic and sub-arctic environments focusing on real-world operational constraints of moving personnel and equipment efficiently and safely to the site of a remote spill, maintaining cleanup operations at the site and safely demobilizing personnel and equipment at the completion of the spill response incident.

J.S. Farlow; USEPA, Edison, NJ 08817
FY 78; $200K FY 79; † FY 80; †

348. Performance Testing - Inland/Harbor Phase II

Evaluate performance of selected sorbent booms and a spill gellation process. Conduct controlled, reproducible tests in EPA's OHMSETT test facility. Three sorbent booms and oil gellation process will be selected and evaluated with different test oils under various wave and current conditions. A draft final report will be prepared.

Robert Ackerman; Mason & Hanger - Silas Mason Co., Inc.
FY 78; FY 79; $50K FY 80; †

Prevention and Clean-up Research (ERL/Cincinnati) (continued)

349. Hydrodynamic Characteristics of Booms - Phase II

The purpose of this project is to determine the effects of boom angle, length and rigging configuration on successful diversion of oil on inland waterways.

Robert Ackerman; Mason & Hanger - Silas Mason Co., Inc. (as above)
FY 78; $23K FY 79; $35K FY 80; $35K

350. Performance Testing Offshore Equipment

Evaluate performance of selected cleanup equipment. Conduct controlled reproducible tests in EPA's OHMSETT test facility. Equipment evaluated includes two oil skimmers (Macro class V and a prototype Oil Mop, Inc. ZRV) and a research prototype sorbent system (CEL).

Robert Ackerman; Mason & Hanger - Silan Mason Co., Inc.
FY 78; † FY 79; $50K FY 80; $50K

351. Performance Testing of Air Jet Boom

Performance evaluation of fullsize air-jet boom. Phase I - tests of Mod. I and Mod. II at OHMSETT. Evaluate performance with two tests oils under various current and wave conditions. A final report will be prepared.

Robert Ackerman; Mason & Hanger - Silas Mason Co., Inc.
FY 78; * FY 79; † FY 80; †

352. Operate OHMSETT

The objective of this project is to provide an operations and maintenance staff and a mechanism for operating the OHMSETT facility.

Robert Ackerman; Mason & Hanger - Silas Mason Co., Inc. (as above)
FY 78; † FY 79; $40K FY 80; $40K

353. MOP Oil Spill Dispersants

The objective is to develop a first generation manual of practice for environmentally acceptable utilization of oil spill dispersants to "prevent or substantially reduce explosion or fire hazard to property" or "prevent or reduce sustantially hazard to a major segment of the populations or vulnerable species of waterfowl", or "result in least overall environmental damage, or

Prevention and Clean-up Research (ERL/Cincinnati) (continued)

interference with designated water use"

Robert Castle; Woodward Clyde Consultants, 3 Embarcadero Center,
Suite 700, San Francisco, CA 94111
FY 78; $62K FY 79; † FY 80; †

354. MOP Surface Collecting Agents

The objective is to develop a first generation manual of practice for environmentally acceptable utilization of surface collecting agents to "prevent or substantially reduce explosion or fire hazard to property", or "prevent or reduce substantial hazards to a major segment of the populations or vulnerable species of waterfowl", or "result in least overal environmental damage, or interference with designaged water use".

Robert Castle; Woodward Clyde Consultants (as above)
FY 78; * FY 79; † FY 80; †

355. Evaluation of Selected Field Practice for Using Dispersants on Oil Slicks

The objective is to evaluate State of the Art technology for utilization of oil spill dispersants on large open water bodies to mitigate the environmental impact of oil spills on shorelines.

Robert Ackerman; Mason & Hanger - Silas Mason Co., Inc. (as above)
FY 78; † FY 79; $96K FY 80;

356. Develop and Demonstrate Effective Dispersant Application Techniques

The objective of the project is to determine how effective are certain processes which break up and dissipate an oil spill in the open ocean.

J.R. Gould; American Petroleum Institute, 2101 "L" St., Wash. D.C.
FY 78; $76K FY 79; $20K FY 80; †

357. Compilation of Cold-Climate Oil-Spill Research and Technology Pertaining to Alaskan Shorelines

The objective of this project is to perform a literature review and crtical evaluation of ongoing R&D projects dealing with shoreline protection and restoration in the arctic areas.

Jay McKendrick; Univ. of Alaska, Fairbanks, AK
FY 78; * FY 79; † FY 80; †

358. Manual of Practice for Cold Climate Shoreline Protection and Restoration

The purpose of this project is to produce a field manual which consolidates the available literature and expertise currently existing on protection, clean-up and restoration of ocean, estuarine and inland cold climate and cold weather shorelines endangered or contaminated by oil spills.

Bart Tuffly; Rockwell International - Rocketdyne Div. (as above)
FY 78;* FY 79; † FY 80; †

359. Surface Treatment Agents for Shoreline and Marsh Area Protection

The objective of this project is to conduct full-scale, "real world" tests on the effectiveness of various film-forming treatment agents in protecting shorelines from waterborne oil spill contamination. Field tests will be conducted on representative intertidal test plot sections of beach and salt marsh.

Thomas Nanney; American Petroleum Inst. (as above)
FY 78; * FY 79; † FY 80; †

360. Manuals of Practice for Ocean, Estuarine and Inland Shorelines

The objective of the project is to prepare a Manual of Practice for Protection and Restoration of Oil Contaminated Shorelines. The project involves preparation of a Manual of Practice, structured to provide a decision-making guide to enable the user to determine, for a given oil spill situation, which protection and restoration techniques would be most effective for a specific type of shoreline.

Carl Foget; Woodward Clyde (as above)
FY 78; * FY 79; † FY 80; †

361. Manufacture and Use of Modular Equipment for Control and Recovery of Oil Spills by Gelation with Amine Carbamates

In view of the successful results of the research performed in accordance with JRL Contract N00014-76-0-349 (Collation of Oil Spills by Amine Carbamate as Adjunct to US Navy Oil Spill Recovery Operations), and in the current EPA contract (Grant Identification

Prevention and Clean-up Research (ERL/Cincinnati) (continued)

No. R-8-4628010, "The Amine Carbamate Gelation Techniques for Use in Oil Spill Recovery Operations", further work is proposed to extrapolate those results to full scale operational situations, with construction, testing, and evaluation, and real-life use of prototype modular equipment.

William W. Bannister; Univ. of Lowell, Lowell, MA
FY 78; $78K FY 79; † FY 80; †

362. User's Manual for Oil Spill Damage Assessment

The purpose of this project is to prepare an oil spill damage assessment manual which will allow field personnel to direct oil spill cleanup teams from an environmental protection perspective.

Bart Tuffly; Rockwell International - Rocketdyne Div. (as above)
FY 78; * FY 79; † FY 80; †

363. Damage Assessment Following Alexandria Bay Oil Spill

To determine the environmental and economic pact caused by spillage of oil on June 23, 1976, in the St. Lawrence River in order to provide data necessary for the development of policies and/or procedures pertaining to matters dealing with the transport and/or spillage of hazardous materials in areas similar in characteristics to the St. Lawrence River system.

Royal Nadeau; EPA, Edison, NJ 08817
FY 78; * FY 79; † FY 80; †

364. Oil Spill & Oil Pollution Reports

The objective of this project will be to compile and issue for publication quarterly bibliography reports containing information on oil pollution. Included will be summaries of (a) oil spill events, (b) bibliographic literature citations, (c) current research projects and (d) patent summaries.

Henry W. Offen; Univ. of Calif., Santa Barbara, CA
FY 78; $85K FY 79; $59K FY 80; $85K

365. 1979 National Conference on Prevention of Oil Spills

A conference will be convened in March 1979 on control and prevention of oil spills.

Prevention and Clean-up Research (ERL/Cincinnati) (continued)

Jack Gould; Amer. Petro. Inst. (as above)
FY 78; † FY 79; † FY 80; †

366. Acoustical System to Prevent Hazardous Material Dike Failures

Devices to provide early warning of potential spills of impounded hazardous materials will be developed and demonstrated. The technique to be used is based upon the detection of stress waves (acoustical emissions) that are generated by interparticle (shearing) movement within the earthen (soil) dike material.

Robert M. Koener; Drexel Univ., Philadelphia, Pa.
FY 78; $5K FY 79; $9K FY 80; †

367. Microwave System to Prevent Hazardous Material Dike Failures

The detection and location of water levels, water pockets, voids and various other discontinuities between different layers of earth or rock is critical to insure the performance and safety of earth dams and dikes that contain hazardous materials .

Robert M.. Koener; Drexel Univ. (as above)
FY 78; $51K FY 79; $26K FY 80; $26K

368. Document/Analyze Historical Data on Hazardous Spills

The objective of this program is to collect and analyze documentation of spills of hazardous substances. These incidents will be classified by frequency, quantity and type of material, hazard potential, and other significant parameters which will describe the impact of the incident.

Joseph L. Buckley; Factory Mutual Research Corp., 1151 Boston Providence Turnpike, Norwood, MA 02062
FY 78; $21K FY 79; $35K FY 80; $35K

369. Development/Demonstration of Fail-Safe Devices for Preventing Spills of Hazardous Materials During Production and Storage

The objective of this program is to develop and to demonstrate under actual use conditions, one or more fail-safe devices for preventing high incidence hazardous material spills in plants

Prevention and Clean-up Research (ERL/Cincinnati) (continued)

during production and storage.
Joseph L. Buckley; Factory Mutual Research Corp. (as above)

FY 78; * FY 79; † FY 80; †

370. Automatic Loading Shut Down HM Spill Prevention System

The objective of this project is to design and demonstrate in actual use a transferline system that will shut off automatically in the event of a line break or significant leak. The primary application of this system is for the loading and unloading of liquid hazardous materials from truck tankers, tank cars, barges, etc.

John Simmons; Science Applications, Inc. (as above)
FY 78; * FY 79; † FY 80; †

371. Field Identification Kit for Spilled Hazardous Materials

The objective of this project is to develop a portable field for use by EPA and other spill response personnel in identifying spilled hazardous materials.

Achille Silvestri; Department of the Army, Chemical Systems Lab.,
Aberdeen Proving Ground, MD 21010
FY 78; $48K FY 79; † FY 80; †

372. Detection of Insoluble Hazardous Materials on River Bottoms

The objective of this project is to develop a portable device to detect denser than water, insoluble hazardous materials on the bottoms of water-courses.

Milton Kirsh; Rockwell International - Rocketdyne Div. (as above)
FY 78; $51K FY 79; $50K FY 80; $50K

373. Enzyme Inhibition Based Systems for Detecting HM Spills

The objective is to develop and evaluate enzyme inhibition-based systems, such as the Cholinesterase Antagonist Monitor (CAM) for the detection of hazardous materials in water.

Louis Goodson; Midwest Research Inst., 425 Volkner Blvd.,
Kansas City, MO 64110
FY 78; * FY 79; † FY 80; †

374. Fixed Station Broad Based Spill Alarm System

The objective of this project is to develop and evaluate an in-stream system capable of continuously detecting the broad variety of hazardous materials spilled into the nations waterways.

Bart Tuffly; Rockwell International - Rocketdyne Div. (as above)
FY 78; * FY 79; † FY 80; †

375. Design, Fabrication, and Demonstration of a Mobile Stream Diversion System for Hazardous Material Spill Containment

The objective of this project is to design, fabricate, and demonstrate a mobile field-use system for diversion of a small stream in the event of a hazardous spill.

C. Wilton; Scientific Service, Inc.
FY 78; * FY 79; † FY 80; †

376. Remote Control Hovercraft or Vehicle to Plug Hazardous Leaks

The grantee has proposed a two-phase effort to design, develop, test and evaluate a hovercraft-type of vehicle for moving into a spill contaminated area.

H.A. Gustafson; City of Oxnard Fire Department, 251 South "C" Street, Oxnard, CA 93030
FY 78; † FY 79; $86K FY 80; $86K

377. Testing & Evaluation of a Modified Hazardous Material Barrier

The purpose of this project is to test the improved (second generation) full-depth, physical barrier (fabricated during EPA Contract 68-01-0103) for containment of spilled soluble hazardous materials in a flowing watercourse (2-knot currents).

T.N. Blockwick; Sampson Ocean Systems, 99 High Street, Boston, MA
FY 78; * FY 79; † FY 80; †

378. In-Situ Treatment of Hazardous Material Spills in Large Watercourses

It is the purpose of this project to develop a system for treating hazardous material spills in large waterbodies when conditions and/or the nature of the spilled substance render present technology inadequate.

George Schneider; Rockwell International-Rocketdyne Div. (as above)
FY 78; $36K FY 79; $50K FY 80; $50K

Prevention and Clean-up Research (ERL/Cincinnati) (continued)

379. Mobile Incineration System for Hazardous Material and Oil Spill Wastes Cleanup

The objectives of this program are to design, construct and demonstrate a mobile detoxification/incineration system for processing debris from hazardous material oil spills.

Raymond Tenzer; MB Associates, Inc., Bollinger Canyon Road, P. O. Box 196, San Ramon, CA 94583
FY 78; $170K FY 79; $603K FY 80; †

380. Mobile Separation for Extracting Spilled Hazardous Material from Soil

This project is developing a field system for removing hazardous materals from contaminated soils. This system will be completely mobile and able to work close to the spill impact zone.

Ira Wilder; EPA, Edison, N.J.
FY 78; $100K FY 79; $99K FY 80; $100K

381. Guidelines for the Use of Chemicals to Remove Hazardous Substances Discharges

It is the purpose of this phase of the contract to develop guidelines for the use of chemical agents (e.g. neutralizing chemicals, precipitants, gels, etc.) and other additives in treating spills of hazardous substances.

Roland Pilie; Calspan Corp., Buffalo, NY 14221 -
FY 78; * FY 79; † FY 80; †

382. Development of a System to Disperse Mass Transfer Media for In Situ Treatment of Hazardous Material Spills

The purpose of this project is to design "in situ" treatment of hazardous material spills using floating activated carbon.

G.W. Dawson; Mattelle Memorial Inst., Pacific Northwest Labs, Richland, Washington 99352
FY 78; * FY 79; † FY 80; †

383. Study to Determine the Feasibility of Biological Countermeasures to Mitigate the Effects of Hazardous Material Spills

The purpose of this project is to investigate (on a laboratory scale) the feasibility of using microbiological processes for

Prevention and Clean-up Research (ERL/Cincinnati) (continued)

in situ treatment of hazardous materials in the aquatic environment.

Neal E. Armstrong; Univ. of Texas, Engineering Labs, Bldg. 305, Austin, TX 78712
FY 78; * FY 79; † FY 80; †

384. User Oriented Evaluation of EPA-Developed Hazardous Spill Control Hardware

The objective is to present proof-of-performance data and demonstrations of EPA-developed, hazardous material spill control and removal equipment to municipal fire, emergency, and health services and to promote test usage so as to encourage adoption of the equipment by municipalities and to bring the equipment into regular production.

John T. Smith; Public Technology, Inc., 1140 Connecticut Ave, NW, Washington, D.C. 20036
FY 78; * FY 79; † FY 80; †

385. Mobile 250 gpm "Dynactor" Treatment System for Spilled HM

The purpose of this project is to design, develop and evaluate a trailer-mounted. 250 gpm, emergency, field-use water treatment device consisting of (1) aerator ("Dynactor") to aerate, oxidize, neutralize, precipitate, and/or absorb hazardous materials spilled into water and (2) a separation system for concentrating the effluent solids from the reactor.

Ray J. Roman; Industrial Biotest Lab., Inc., 1810 Frontage Rd., North Brook, Ill. 60062
FY 78; * FY 79; † FY 80; †

386. Mobile Laboratory for Determining Clean-Up Effectiveness

The objective of this project is to provide the capability of performing on-site chemical analyses at the part per billion range for the purpose of monitoring the quality of the effluent from the various spill treatment systems.

Michael Gruenfeld; USEPA, Edison, NJ (as above)
FY 78; * FY 79; † FY 80; †

Prevention and Clean-up Research (ERL/Cincinnati) (continued)

387. Recovery of Floating Hazardous Materials Using Foams and Gels - Phase II

The purpose of this project is to evaluate (at EPA's OHMSETT Facility) the effect of gelling agents and foams on the performance of conventional oil spill control and removal equipment.

Robert Ackerman; Mason & Hanger - Silas Mason Co., Inc. (as above)
FY 78; * FY 79; † FY 80; †

388. Shakedown of R&D Prototype Systems & Pilot Plant Construction

Establish and operate an Environmental Emergency Response Unit. The function of the Unit will be for the operation of oil and hazardous material spill control.

L. Sproul; Mason & Hanger Silas Mason Co., Inc. (as above)
FY 78; $35K FY 79; $248K FY 80; $250K

389. Evaluation/Development of Foams for Mitigating Air Pollution from Hazardous Spills

Hazardous spills often produce toxic noxious vapors dangerous to spill clean-up workers and/or local residents. The development of a foam technique able to inhibit vaporization would greatly aid the safety of the clean-up operation.

Ira Wilder; EPA, Edison, N.J., 00817
FY 78; $91K FY 79; * FY 80; †

390. Parametric Modifications of Spill Factors Affecting Air Pollution

This study will examine the factors (physical, chemical, meteorological, hydrodynamic etc.) affecting the distribution and ultimate effects of hazardous material spills. Emphasis will be placed on the environmental factors affecting rates of volatilization and air dispersion.

Ira Wilder; EPA, Edison, N.J., 00817
FY 78; $108K FY 79; $100K FY 80; $100K

391. Feasibility of Ultrasonics/Ozonation for Hazardous Spill Control

The objective of this project is to determine the feasibility of developing a mobile 250 GPM system using ozonolysis and ultrasonics

Prevention and Clean-up Research (ERL/Cincinnati) (continued)

for the removal of spilled hazardous materials from water.

Joseph Lafornara; USEPA, Edison, NJ 08817
FY 78; $10K FY 79; $10K FY 80; $10K

392. 1980 National Conference on Control of Hazardous Material Spills

A conference will be convened in March 1980 on control and prevention of hazardous material spills.

Ira Wilder; EPA, Edison, N.J., 00817
FY 78; * FY 79; $20K FY 80; *

393. Pilot Scale Testing of Activated Carbon Treatment of Hazardous Material Spills

The objective of this program is to define the extent to which selected hazardous materials can be removed from water by the activated carbon columns of the Mobile Physical/Chemical Treatment Trailer (Contract No. 68-01-0099).

J.P. Lafornara; USEPA (as above)
FY 78; $10K FY 79; $10K FY 80; $10K

394. Mobile Reactivator for Hazardous Spill-Contaminated Carbon

A mobile, field-use activated carbon regeneration system is to be developed for reprocessing carbons spent in absorbing spilled hazardous materials from water. Current technology will be assessed and limited laboratory and pilot-scale demonstrations will be performed.

Ralph H. Holtz; MSA Research Corp., Evans City, PA 16033
FY 78; * FY 79; † FY 80; †

395. Restoring Spill Damaged Areas - Technique & Identification

The objectives of this program are to conduct a literature survey on the natural recovery and on the accelerated restoration of hazardous spill-damaged land areas, ponds, small streams, etc., to explore and develop useful, economic techniques of restoration of hazardous spill-damaged areas.

Bart Tuffly; Rockwell International - Rocketdyne Div.(as above)
FY 78; $32K FY 79; $100K FY 80; $100K

Prevention and Clean-up (ERL/Cincinnati) (continued)

396. Protective Equipment for Spill Response Personnel

The objective of this project is to develop recommendations for the minimum protective equipment requirements for those individuals who have responsibility for the investigation, inspection and supervision of operations involving the clean-up of spills of a broad range of hazardous materials.

Vincent Iacono; U.S. Dept. of the Army, Natiek R & D Command, Natiek, MA 01760
FY 78; * FY 79; † FY 80; †

397. HM Spill Ultimate Disposal: Lab/Pilot Demo Sodium Fluxing and Glassification

This study focuses on the ultimate disposal of contaminated materials. It tests the feasibility of using sodium flux & glassification to permantly encapsulate toxic materials and prevent their escaping to the environment.

Ira Wilder; EPA, N.J., 08817
FY 78; $40K FY 79; $22K FY 80; $20K

398. HM Spill Ultimate Disposal: Lab/Pilot Plant Bromination Studies

This is a feasibility study of the use of bromine as a strong oxidizer for the destruction of toxic materials.

Ira Wilder; EPA, Edison, N.J., 00817
FY 78; $40K FY 79; $10K FY 80; †

399. HM Spill Ultimate Disposal: Lab/Pilot Plant Biodegradation Study

This project deals with developing laboratory scale & pilot plant scale studies examining the use of microorganisms in enrichment culture for the degredation of hazardous materials.

Ira Wilder; EPA, Edison, N.J., 08817
FY 78; * FY 79; † FY 80; †

400. Hazardous Material Spill Ultimate Disposal: Assessing Material/Methods Matrix

This is an analysis of the various materials/methods available for the ultimate disposal of hazardous materials.

Ira Wilder; EPA, Edison, N.J., 08817
FY 78; $16K FY 79; * FY 80; †

ENVIRONMENTAL PROTECTION AGENCY

Great Lakes Program (ERL/Duluth)

401. Development and Application of Mathematical Models of Eutrophication to the Great Lakes

The objective of this study is to develop mathematical models which can be used to compare the effects of various nutrient control strategies on phytoplankton biomass levels in the Great Lakes.

Victor J. Bierman, Jr.; Large Lakes Research Station, 9311 Groh Road, Grosse Isle, MI 48138
FY 78; $50K FY 79; $50K FY 80; $50K

402. Assessment of Potential Health Risks Associated with Organic Contaminants-Feasibility

The first two years of the study will be spent in identifying and collecting existing information on levels of organic toxic materials in the total environment of the Great Lakes Basin.

Leonard M. Schuman; Univ. of Minnesota School of Medicine, St. Paul, MN
FY 78; $50K FY 79; $50K FY 80; $50K

403. Hazardous Materials Fate Models

To develop mathematical models to describe fate and transport of hazardous substances (particularly metals and chlorinated hydrocarbons) in the Great Lakes, initially Saginaw Bay.

Wayland Swain; LLRS (as above)
FY 78; $40K FY 79; $40K FY 80; $40K

404. Survey of Hazardous Substances in Saginaw Bay, Michigan

The distribution of hazardous substances in Saginaw Bay will be surveyed during 12 cruises in 1978. Objectives of the study are to: support the continuing development and verification of transport models; define the distribution and fate of hazardous substances in water, sediments, and biota.

V. Elliot Smith; Cranbrook Inst. of Science, 500 Lone Pine Rd., Bloomfield Hills, Michigan 48013
FY 78; $246K FY 79; † FY 80; †

405. Effects of Polychlorinated Biphenyls on Great Lakes Phytoplanton

The work will extensively use chemostats and turbidostats. Experimental organisms are Asterionella formosa and Microcystis sp. isolated from the Great Lakes along with Scenedesmus sp. which

Great Lakes Program (ERL/Duluth) (continued)

has been extensively investigated is our laboratory and is common in the Great Lakes. Two isomers of PCB's (2,4'-dichloro and 2,2',5-trichloro) will be employed as toxicants.

G-Yull Rhee: State of NY Dept. of Health/Div. of Labs & Res., Empire State Plaza Tower Bldg., Room 1315, Albany, NY 12237
FY 78; $160K FY 79; $160K FY 80; †

406. Uptake and Release of Hazardous Substances by Suspended Materials and Sediments in Lakes

The objectives of this project are to formulate equilibrium models for selected trace metals and hazardous organic materials in three representative areas of interest in the Great Lakes; to evaluate past and present field sampling programs and to test the equilibrium models with available field data; to identify and specify analytical and thermodynamic deficiencies which limit the applicability of the equilibrium models and to identify any major kinetic processes which negate the equilibrium approach and thus require further characterization and to perform appropriate analytical, thermodynamic and kinetic experiments to meet the identified deficiencies and to provide a base for predictive modeling of hazardous substances and sediments in the Great Lakes.

Philip C. Singer; Univ. of North Carolina, Chapel Hill, NC 27514
FY 78; $40K FY 79; † FY 80; †

407. Sediments of Lake Huron

This study should provide present and historical rates of accumulation of metals, organics and nutrients in the fine-grained sediments of Lake Huron. This project is a continuation of an earlier EPA funded study (R803086) of the southern part of Lake Huron.

John A. Robbins; Univ. of Michigan, Ann Arbor, Michigan 48109
FY 78; $80K FY 79; † FY 80; †

408. Imputs of Hazardous Materials from the Atmosphere to Saginae Bay

The objectives are to determine the atmospheric inputs of polychorobiphenyls (PCBs) and polycylic aromatic hydrocarbons (PAHs) to Saginaw Bay, in Lake Huron. Precipitation and dry deposition samples will be collected at several locations around the Bay.

Thomas J. Murphy; DePaul Univ., 25 East Jackson Blvd., Chicago, Ill. 60604
FY 78; $50K FY 79; † FY 80; †

Great Lakes Program (ERL/Duluth) (continued)

409. Characterization of Dredged Materials Disposal Areas in the Great Lakes

Ascertain the nature and extent that open-lake desposition of dredged materials has altered sediment chemistry and benthic macroinvertebrates in the Great Lakes. thirty (30) disposal areas and adjacent control sites in Lakes Erie, Ontario, Huron, and Michigan will be monitored.

Robert A. Sweeney; State Univ. College at Buffalo, 3435 Main St., Bufalo, NY 14214
FY 78; $150K FY 79; † FY 80; †

410. Sampling, Characterization & Analysis Manual for Dredged and Fill Materials

Provide regulatory agencies with a state-of-the-art manual for sampling, characterization, and methods of analysis to include quality assurance programs and represent areas relating to contaminants found in dredged and fill material and water quality assessments for aquatic disposal and contaminant area effluent or runoff.

Robert A. Sweeney; State Univ. College at Buffalo (as above)
FY 78; $100K FY 79; † FY 80; †

411. PCB and DDT Cycling in Lake Superior

The overall objective of the proposed research is to determine the identity, distribution and fate of PCBs and DDT-group pesticides in Lake Superior.

Steven J. Eisenreich; Univ. of Minnesota, Dept. of Civil & Mineral Engineering, Minneapolis, Minnesota 55455
FY 78; $116K FY 79; $116K FY 80; $116K

412. Contaminant Dispersion in Lake Superior

The objective of this prject is to apply the results of past remote sensing and numerical modeling of Lake Superior, funded under EPA Grants R805286-01 and R805175-01 to develop methods and program packages usable for prediction of water quality in Lake Superior and its critical embayments.

Michael Sydor; Univ. of Minnesota, Minneapolis, Minnesota 55455
FY 78; $70K FY 79; $70K FY 80; $70K

Great Lakes Program (ERL/Duluth) (continued)

413. Assessment of Benthic Macroinvertebrates in Lake Michigan

The objective of this project is to construct a thorough description of the composition, distribution and correspondence to prominent environmental features (e.g., sediment texture, concentrations of toxic chemicals) of benthic animals in Lake Michigan.

Samuel C. Mozley; Dept. of Zoology, North Carolina State Univ., Raleigh, N.C. 27607
FY 78; $8K FY 79; † FY 80; †

414. Heavy Metal Accumulation in Benthic Algal Communities

The basic problem to be approached is a continued assessment of the degree to which specific site binding mechanism operate in species which occupy habitats subject to heavy metal contamination in the Great Lakes.

Linda Sicko-Goad; The Univ. of Mich., Ann Arbor, Michigan 48109
FY 78; $44K FY 79; $44K FY 80; †

415. Analysis of Nutrient and Toxic Chemical Fluxes in Great Lakes Sediment

This research project is directed at the development of methods for the quantitative analysis and prediction of nutrient and toxic chemical fluxes to and from Great Lake sediments.

Dominic M. Di Toro; Manhattan College, Manhattan College Parkway, Riverdale, Bronx, NY 10471

FY 78; $156K FY 79; $156K FY 80; †

416. Impact of Zooplankton Grazing Upon Phytoplankton in Eutrophic Saginaw Bay and Western Lake Erie

The ability of the herbivorous zooplankton to regulate algal productivity in highly eutrophic Saginaw Bay (Lake Huron) and Western Lake Erie wil be determined. Total grazing, as well as size-selective feeding on small flagellates, large diatoms and blue-green algae will be measured in the field.

Donald C. McNaught; State Univ. of New York
FY 78; $79K FY 79; † FY 80; †

Great Lakes Program (ERL/Duluth) (continued)

417. Modeling of Toxic Substances in Great Lakes Food Chain

The purpose of this research is to develop a modeling framework of the fate and, to a limited extent, the effects of hazardous, potentially toxic substances in the aquatic food chains of regions of the Great Lakes systems.

Robert V. Thomann; Manhattan College, Riverdale, Bronx, NY 10471
FY 78; $142K FY 79; $142K FY 80; $142K

418. Quantitative Characterization of Great Lakes Phytoplankton Populations

The primary objective of this project is to provide a complete characterization of certain ecologically important phytoplankton populations occurring in the Laurentian Great Lakes.

E.F. Stoemer; Univ. of Michigan, Ann Arbor, Michigan 48109
FY 78; $65K FY 79; $65K FY 80; †

419. Analysis of Planktonic Diatoms from Open Lake Michigan Water

Two-hundred thirty-five water samples will be analyzed, qualitatively and quantitatively, for species of planktonic diatoms.

Ruth Holland Beeton; Univ. of Michigan, Ann Arbor, Michigan 48109
FY 78; $15K FY 79; † FY 80; †

420. Limnological Investigations of Water Quality and Fish Larvae in Lake Erie

The water quality studies will emphasize the importance of sediment water interactions and their influence on water quality and biological communities in Lake Erie. Larval fish investigations will be concentrated in areas of highest densities in an attempt to more precisely define the present and potential impact of electric power generation on these populations.

Charles E. Herdendorf; Ohio State Univ. (Research Foundation) 190 North Oval Dr., Columbus, Ohio 43210
FY 78; $113K FY 79; † FY 80; †

421. A Feasibility Study for the Mathematical Modeling and Control of Cladophora in the Great Lakes

The objective of the proposed work is to investigate the feasibility of developing mathematical models for Cladophora which can be

Great Lakes Program (ERL/Duluth) (continued)

used to predict the effectiveness of alternative control measures and policies.

Raymond P. Canale; Univ. of Michigan, Ann Arbor, Michigan 48109
FY 78; $27K FY 79; † FY 80; †

422. Growth of Cladophora glomerata: Relationships to Trace Nutrients, Herbivores and Ecosystem Functioning

One objective of the proposed program is to investigate the effect of trace metal and organic phosphorus micronutrients on the growth of Caldophora glomerata.

Dr. Ruth Patrick; Dept. of Limnology, Academy of Natural Sciences, 17th at Parkway, Philadelphis, Pennsylvania 19103
FY 78; $131K FY 79; † FY 80; †

423. Comparative Kinetic Studies of Nutrient Uptake and Growth in the Great Lake Phytoplankton

The investigation of the effect of the major environmental variables, temperature and light, on growth and nutrient uptake will continue. Interactions of nutrient-light and nutrient-temperature will also be studied.

G-Yull Rhee; State Univ. of NY (Albany), Empire State Plaza Tower Bldg., Room 1315, Alabany, NY 12237
FY 78; $115K FY 79; † FY 80; †

424. Kinetic Studies of Decomposition and Nutrient Regeneration of Great Lakes Phytoplankton

The objective of this project is to provide kinetic experimental data for the development of a mechanistic submodel to describe the decomposition and nutrient regeneration of algal blooms in natural waters.

Joseph V. DePinto; Clarkson College of Technology, Potsdam, NY 13676
FY 78; $50K FY 79; † FY 80; †

ENVIRONMENTAL PROTECTION AGENCY

Marine Ecology Studies (Corvallis Lab.)

425. **Determine the Response of Aquatic Ecosystems to Chemical/Physical Factors Influencing Pollutant Transport and Retention**

This research extends past work on estuarine, riverine, and coastal dynamics to emcompass ecosystem responses as indicated by marine algal assay procedures, chemical analyses, and sediment transport.

P.I. Callaway; USEAPA Corvallis Env. Res. Lab., 200 S. 35th St., Corvallis, OR 93730
FY 78; $250K FY 79; $250K FY 80; †

426. **Ecosystem Dynamics - Wetlands Criteria**

The research in the Wetlands Research Program is aimed at describing the functions and composition of wetlands.

Harold Kibby; Corvallis Env. Res. Lab. (as above)
FY 78; $180K FY 79; $180K FY 80; †

427. **Development and Application of Methods for Quantitative Assessment of Effects on Marine Communities**

To develop sampling guidelines for benthic, planktonic, fish and intertidal communities which will provide the data necessary for quantitative assessment of pollution effects.

R. Swartz; USEAPA Corvallis Env. Res. Lab. (as above)
FY 78; $270K FY 79; $270K FY 80; $270K

428. **Detrital Dynamics of Food Webs in Freshwater Wetlands and Adjacent Estuarine Systems**

The objective focuses on the detrital and microfloral processes in wetlands (swamps, natural freshwater marshes and brackish water marshes) and examines some of their relationships to the saline wetlands which have been studied for more than two decades.

L. Wolf; Univ. of Georgia, Athens, Georgia 30601
FY 78; $10K FY 79; † FY 80; †

429. **Effects of Planform Geometry on Tidal Flushing and Mixing in Marinas**

Determine, by quantitative laboratory measurements, the effects of particulate geometry parameters upon both the overall (gross) water exchange rate and the variability in local exchange rate

Marine Ecology Studies (Corvallis Lab.)(continued)

due to tidal flushing in small boat basins.

E.P. Richey; Univ. of Washington, Seattle, Washington 98195
FY 78; $12K FY 79; † FY 80; †

430. Screening Protocols for Impacts of Toxic Materials on Marine Environments

This program has as its objective the determination of biochemical and/ or physiological and/or metabolic responses of organisms in a variety of situations, i.e., air/water, water/sediment, air/sediment, intertidal flats), and interfaces at varying salinities.

C. Randell; USEAPA Corvallis Env. Res. Lab. (as above)
FY 78; $170K FY 79; $170K FY 80; $170K

431. Pollutant Behavior and Ecosystem Response Associated With Marine Waste Disposal Practices and Coastal Zone Uses

Research planned is expected to provide important information on the quantities of metals and chorinated hydrocarbons transferred from specific sources to marine water; on the bio-uptake of metals; on effects of waste water disinfectants on phytoplankton; on the types of municipal waste water treatment needed for ocean discharge as determined by evaluation of effects on populations in the receiving marine environment; on the effects of sewage treatment processes on the survival of and uses in the receiving marine environment; and the preparation of a plume workbook which will help regulatory and research agencies understand the distribution and dilution of pollutants from outfall pipes.

W. Schults; USEAPA Corvallis Env. Res. Lab. (as above)
FY 78; $260K FY 79; $260K FY 80; $260K

432. Relationship Between Black Mangrove Forest and Estuarine Waters

Exports and imports of dissolved and particulate organic matter from selected black mangrove forests in the west coast of Florida will be studied.

Dr. Lugo; Univ. of Florida, Gainesville, Florida 32601
FY 78; $9K FY 79; † FY 80; †

Marine Ecology Studies (Corvallis Lab.) (continued)

433. Field Studies of Cook Inlet Wetlands, Alaska: Secondary Productivity

This is a study of secondary productivity in the Potter Marsh ecosystem. The key questions to be addressed are: 1) what is the approximate nature of the wetlands food web; 2) what are the principal energy transfer pathways within the community; and 3) what contributions do the wetlands provide to adjacent ecosystems (i.e., nursery ground for estuarine invertebrates or fish; roosting, feeding or breeding areas for shorebirds and waterfowl)?

Fred W. Rabe; Univ. of Idaho, Moscow, Idaho 83843
FY 78; $55K FY 79; † FY 80 †

434. Morphological and Anatomical Responses of Selected Coastal Marsh Plants to Soil Moisture for Determination of Wetland Limits

To determine the morphological and anatomical responses of selected coastal marsh (salt) plant species to varying conditions of soil moisture in order to help identify wetland limits in Oregon.

R. Rickson; Oregon State Univ., Corvallis, Oregon 97331
FY 78; $40K FY 79; $40K FY 80; †

435. Effects of Increased Sediment Loadings Caused by Human Activity on Alaskan Wetland Vegetation

The objective is to survey and examine experimentally the effect of increased turbidity and sediment loading caused by road construction on the composition of Alaskan wetland vegetation; and to experimentally study the potential for recovery of Alaskan wetland vegetation types from disturbances caused by increased sediment loading.

Arnold G. van der Valk; USEPA ERL-Corvallis (as above)
FY 78; $77K FY 79; $77K FY 80; †

436. Development and Validation of the Echinoderm Fertilization Bioassay for Testing Toxic Substances

Echinoderm fertilization bioassay will be developed as a standard method for routine testing of toxic substances. Initial testing will be conducted on priority chemicals selected by EPA as repre-

Marine Ecology Studies (Corvallis Lab.) (continued)

sentative of those to be regulated under the Toxic Substances Control Act.

J. Stober; USEAPA ERL-Corvallis (as above)
FY 78; $100K FY 79; † FY 80; †

437. Effects of Petroleum Hydrocarbons on Fatty Acid Metabolism in Marine Fishes: A Possible Sublethal Effect on the Physiology of Temperature Acclimation

The research will test the hypothesis that petroleum hydrocarbon compounds capable of inducing microsomal mixed-function oxidases in fish tissues interfere with normal patterns of fatty acid metabolism, specifically fatty acid desaturation, and that such effects result in modified fatty acid patterns in membrane phospholipids of fish and suboptimal physiological responses to temperature.

Richard S. Caldwell; Oregon State Univ., Corvallis, Oregon 97331
FY 78; * FY 79; † FY 80; †

438. Effects of Chromium and Nutrient Pollutants on Natural Phytoplankton Populations

The overall objective of the proposed research is to study the responses of endemic estuarine and near-shore phytoplankton populations to a variety of pollutant additions. Two general classes of pollutants will be examined: excess nutrients and toxic chromium.

Lawrence F. Small; Dept. of Oceanography, Oregon St. U. Corvallis, Oregon 97330
FY 78; * FY 79; † FY 80; †

439. Assessment of the Application of Multivariate Analyses in Ecological Investigations of Water Pollution

Assess applicability, efficacy and problems of interpretation of multivariate analyses, particularly numerical classification and ordination in aquatic ecological assessments of environmental perturbations.

Donald F. Boesch; Virginia Inst. of Marine Science, Glouchester Point, Virginia 23062
FY 78; * FY 79; † FY 80; †

Marine Ecology Studies (Corvallis Lab.) (continued)

440. Development of a Bioassay for Assessing the Effect of Dredging

A bioassay for evaluating the effects of dumping dredge spoils will be developed.

Allan D. Michael; Univ. of Mass., Marine Station, P.O. Box 128,
Lanesville Station, Glouchester, MA 01930
FY 78; * FY 79; † FY 80; †

441. Effects on the Marine Environment of Petroleum Refinery Effluents

The requirement for this research is to provide direct indications, of acute and sub-acute toxic effects of petroleum processing wastewaters. For effluents from selected West Coast petroleum refineries, determine short and long-term dose-response relationships to important marine organisms.

D.J. Baumgartuer; USEAPA ERL-Corvallis (as above)
FY 78; † FY 79; $100K FY 80; $100K

442. S.E. Florida Ocean Outfall Study

Ocean-outfall disposal of domestic waste raises pertinent questions concerning locations due to a paucity of factual information and data. To resolve these questions this project has three objectives:

1. Characterize the plume mixing zone as it relates to the kinds and subsequent dilutions of sewage derived solutes;
2. Test methods for the sampling and enumeration of viral pathogens and determine the most appropriate treatment procedure;
3. Evaluate outfall induced (via particulates and pathogens) responses of sessile invertebrates and other important marine animals;

Samuel C. Smedaker; Div. Bio. & Env. Living Res., Univ. of Miami, FL
FY 78; $247K FY 79; † FY 80; †

Marine Ecology Studies (Gulf Breeze Lab.)

443. The Ecological Impact of Integrated Chemical and Biological Aquatic Weed Control

To determine the impact of chemical/biological control in the fishery environment, and to ascertain the most desirable balance of vegetation versus open water that will maintain desirable water quality, fish growth, and reproduction. To evaluate the feasibility of combining chemical and biological weed control in a natural lake and determine cost benefit ratios, and to determine the effects of dense submerged aquatic weed growth on the recreational utilization and fish populations of Orange Lake, Florida.

Jerome V. Shirman; Univ. of Florida, Gainesville, Florida 32601
FY 78; $175K FY 79; $175K FY 80; $175K

444. Cycling of Xenobiotics Through Estuarine and Marine Sediments

This research will examine a mechanism of cycling various xenobiotics in and through estuarine and marine sediments. A lugworm, Arenicola cristata (Polychaeta: Arenicolidae), will be studied to define and quantify movement of compounds through the sediment as a result of reworking and biological accumulation.

Charles N. D'Asaro; Univ. of West Florida, Pensacola, Fla. 32504
FY 78; $200K FY 79; $200K FY 80; †

445. Sublethal and Latent Effects of Selected Petroleum Hydrocarbons and Barium Sulfate on Marine Organisms

This investigation will examine the toxic, sublethal and latent effects of certain polycyclic aromatic hydrocarbons and barium sulfate on larval and adult stages of selected invertebrates and fish.

K. Ranga Rao; Univ. of West Florida, Pensacola, Fla. 32504
FY 78; $47K FY 79; † FY 80; †

446. Effects of Drilling Fluids and Oil on Corals Occupying Hard-Bank Communities

An experimental design is proposed in which behavioral and physiological reactions of scleractinian corals indigenous to hard bank communities in the Gulf of Mexico are determined in response to chronic low levels of drilling fluid components and shale oil products.

Thomas J. Bright; Texas A&M Research Foundation, Faculty Exchange Box H, College Station, TX 77843
FY 78; $40K FY 79; † FY 80; †

Marine Ecology Studies (Gulf Breeze Lab.) (continued)

447. Detection of Carcinogenicity of Oils in Sea Water; Use of Hybrid Fish and Food Chain

This project involves the validation of a quick, sensitive method of screening for water-born carcinogens using laboratory reared fish, as a part of an overall screening system for carcinogens. It is hoped to extend the technique to a tissue culture system. Early applications are also planned to include the examination of the kinetics of transmission of carcinogens along simulated food webs.

Douglas G. Humm; Univ. of North Carolina, Chapel Hill, N.C. 27514
FY 78; $47K FY 78; † FY 80; †

448. Genetic Variation and Resistence to Carcinogens in Natural Waters

The objective of this grant is to evaluate the feasibility of using isogenic fish to detect carcinogens. The validated bioassays system would be used to test the carcinogenic properties of compounds from petroleum and shale oil.

R. Jack Schultz; Univ. of Connecticut, Stores, CT 06268
FY 78; $51K FY 79; $51K FY 80; †

449. ADP Technical Support Services

The purpose of this work is to provide ADP services in support of the Environmental Research Laboratory, Gulf Breeze, research program. This will include support of the modelling program on the fate, persistence and effects of toxic materials on coastal waters, statistical services in the laboratory and data base management of the toxicology program.

Robert McCutchen; GSA, P.O. Box 1900, Huntsville, AL 35807
FY 78; $90K FY 79; $90K FY 80; $90K

450. Photooxidation Products from Petroleum PAH's at Air-Sea Interface

The primary purpose of the proposed program will be to determine the major photooxidation products of petroleum derived polynuclear aromatic hydrocarbons (PAH).

J.L. Laseter; USEPA ERL, GB, Sabine Island, Gulf Breeze, Fla. 32561
FY 78; $62K FY 79; $62K FY 80; †

Marine Ecology Studies (Gulf Breeze Lab.) (continued)

451. Effects of Drilling Mud Constituents on the Sedimentary Micoflora and the Base of the Marine Benthic Food Web

This proposal specifically addresses the effects of drilling muds and their components on the biomass, physiological status and community structures of the microbial communities and relates these changes to the behavior and physiological vigor of the microcrustacean primary eukaryotic consumers of the microbial communities which form the base of the benthic food webs.

David C. White; Florida State Univ., Tallahassee, Florida 32306
FY 78; $41K FY 79; $41K FY 80; †

452. The Effects of Drilling Mud on Marine Organisms

Experiments will be conducted which will use special laboratory tanks containing a directional water current to assess the effects of at least four selected drilling mud components on benthic organisms.

Robert C. Glassen; Florida State Univ., Tallahassee, Florida 32601
FY 78; $30K FY 79; $51K FY 80; $51K

453. Air Exposures and Their Effects

Aquatic species such as fishes and oysters are studied in relation to exposure to carcinogens via water in order to assess the role of carcinogens that are deposited in water systems by fallout from air. The aquatic ecosystem is the ultimate receptacle of airborne pollutants due to eventual fallout. Fate and effects of carcinogens are determined in select species thru the use of biochemical, and pathobiological methods including epizootiology of tumors in aquatic species.

John A. Couch; USEPA, Env. Res. Lab., GB, Sabine Island, Gulf Breeze, Florida 32561
FY 78; $50K FY 79; † FY 80; †

454. Separation of Compounds With Anti-Carcinogenic Properties From Marine Invertebrates

The purpose of this research is to develop procedures for the (1) concentration, separation, and detection of mutagenous/carcinogenous pollutants from the marine environment, and (2) extraction, separation, and identification of anti-carcinogens from marine invertebrates.

Clifford W.J. Chang; Univ. of West Florida, Pensacola, Fla. 32504
FY 78; $41K FY 79; $41K FY 80; $41K

Marine Ecology (Gulf Breeze Lab.) (continued)

455. Effects of Petroleum Compounds on Estuarine Fishes

The objective of this project is to develop information relating specific petroleum compounds to organism level lethal/sublethal effects.

Billy J. Martin; Univ. of Southern Mississippi, Southern Station,
Box 1, Hattiesburg, Mississippi 39401
FY 78; $60K FY 79; † FY 80; †

456. Validation of Toxicity Tests Using Marine Animals

The objective of this study is to determine the range of values to be expected from bioassay tests conducted by industry.

Steven C. Schimmel; USEPA, Env. Res. Lab., Gulf Breeze, FL
FY 78; $127K FY 79; † FY 80; †

457. Impact of Pollutants on Marine and Estuarine Systems

The research conducted under this project will develop bioassay methods suitable for testing the ecological effects of dredged and fill material on estuarine and marine environments.

Frank G. Wilkes; USEPA, Env. Res. Lab., Gulf Breeze, FL
FY 78; $199K FY 79; $199K FY 80; $199K

458. Behavioral Assays for the Effects of Drilling Muds on Marine Animals

Through the research, two behavioral assays involving the commercial scallop (*Argopecten irradians*) will be developed. By electonically recording pumping rate and the distance the valves are gaped, both the filter feeding response and the swimming (escape) response will be studied.

Paul V. Hamilton; Univ. of West Florida, Pensacola, Florida 32504
FY 78; $22K FY 79; † FY 80; †

459. Water Quality and Eutrophication Studies in Santa Rosa Sound in the Proximity of Escambia and Santa Rosa Counties, Florida

The proposed project is intended to monitor water quality parameters over a period of two years that will give detailed

Marine Ecology Studies (Gulf Breeze Lab.) (continued)

information concerning the present water quality of Santa Rosa Sound, Escambia-Santa Rosa Counties, Florida.

Gerald A. Moshiri; Univ. of West Florida (as above)
FY 78; $35K FY 79; † FY 80; †

460. Mathematical Models of Fates of Pollutants in Estuaries

This work will quantify the inter-relationships between physical, chemical and biological variables of estuarine systems. Included will be an analysis of two-layered estuarine transport, effects on suspended solids and salinity, adsorption/desorption mechanisms for hazardous substances, and food chain implications.

Donald J. O'Connor; Manhattan College, Manhattan College Pkwy, Riverdale, Bronx, NY 10471
FY 78; $140K FY 79; † FY 80; †

461. Determine the Significance of the Occurrence in the Marine and Estuarine Environments of Carcinogenic Compounds with Emphasis on Organic Compounds

Expose marine and estuarine organisms to infectious pathogen agents in the presence of environmentally occurring chemicals. Determine the effects of chemicals on the pathogenicity of the agents. Expose selected marine and estuarine species to suspected carcinogens, teratogens and mutagens. Determine the relation between chemical on oogenesis and chemical concentrations. Compare results with those obtained for mammals.

John A. Couch; USEPA, Env. Res. Lab., Gulf Breeze, FL
FY 78; $150K FY 79; $150K FY 80; $150K

462. Determine the Relation of Virus Occurrence and Effects in the Marine and Estuarine Environments to the Response of Marine and Estuarine Organism to Chlorinated Hydrocarbon Pesticides

Relate virus growth and occurrence to exposure of shrimp to chlorinated hydrocarbon pesticides. Determine the biochemical and biological characteristics of the pink shrimp polyhedrous virus.

John A. Couch; USEPA, Env. Res. Lab., Gulf Breeze, FL
FY 78; $108K FY 79; $108K FY 80; $108K

Marine Ecology Studies (Gulf Breeze Lab.) (continued)

463. **Biodegradation of Chlorinated Dibenzofurans and Dibenzodioxins**

The objectives of this study are to isolate microorganisms capable of metabolizing dibenzo-p-dioxin, dibenzofuran and some of their chlorinated derivitatives. The organisms will be used to elucidate the mechanisms used by microorganisms to degrade this group of compounds.

David T. Gibson; Univ. of Texas, 601 Colorado St., Austin, TX 78701
FY 78; $28K FY 79; $28K FY 80; †

464. **Develop and Validate a Suitable System to Comparatively Evaluate Selected Substitute Pesticide Chemicals Effects Upon Estuarine and/or Marine Biota**

The objective of this research is to develop methods, with emphasis on model ecosystems and ecosystem components, to determine the fate and effects of substitute chemicals in the environment.

Frank G. Wilkes; USEPA, Env. Res. Lab., Gulf Breeze, FL
FY 78; $41K FY 79; $41K FY 80; $41K

465. **Assess the Comparative Ecological Effects of Selected Candidate Substitute Pesticide Chemicals Upon Suitable Marine and/or Estuarine Biota**

The objective of this research is to use methods of determining the fate and effects of organic compounds to screen potential substitute chemicals. These data will be used to determine the environmental suitability of pesticides which may act as replacements for those uses of pesticdes that have been suspended, cancelled are in litigation or under review.

Frank G. Wilkes; USEPA, Env. Res. Lab., Gulf Breeze, FL
FY 78; $36K FY 79; $36K FY 80; $36K

466. **Determine the Pesticide-Microbial Interactions in the Estuarine Environment**

Isolate naturally occurring estuarine microorganisms. In laboratory, expose to varying concentrations of selected pesticides. Determine pesticide effects on growth rates. Identify degradation products. Expose microorganisms to pesticides in combination with commonly occurring estuarine oil slicks, microbial degradation and degradation products of pesticides.

Al Bourquin; USEPA, Env. Res. Lab., Gulf Breeze, FL
FY 78; $132K FY 79; $132K FY 80; $132K

Marine Ecology Studies (Gulf Breeze Lab.) (continued)

467. Determine the Effects of Selected Pesticides and Other Organic Compounds on Marine and Estuarine Ecosystems

This project will develop a balanced laboratory scale microcosm for use in determining effects of pollutants on estuarine ecosystems. Organisms representative of Gulf Coast area estuaries will be used.

Dick Garnas; USEPA, Env. Res. Lab., Gulf Breeze, FL
FY 78; $122K FY 79; $122K FY 80; $122K

468. Determine the Species Level of Effects of Selected Pesticides and Other Organic Compounds on Marine and Estuarine Organisms

The objectives of this project are to: 1) expose selected marine and estuarine organisms to pesticide-heavy metal combinations, 2) determine toxicological and physiological effects 3) determine rates of pollutant accumulation.

David Hansen; USEPA, Env. Res. Lab., Gulf Breeze, FL
FY 78; $708K FY 79; $708K FY 80; $708K

469. Determine the Organism and Ecosystem Level Effects of Anti-Fouling Biocides and Disinfectants on Estuarine Organisms and Ecosystems

Expose selected estuarine organisms to various concentrations of antifouling biocides and disinfectants such as chlorine. Determine acute toxicity to important life stages. Determine chronic effects such as behavioral changes, reproductive success etc., on estuarine organisms.

William Davis; USEPA, Bears Bluff Field Station, P.O. Box 368, Johns Island, S.C. 29455
FY 78; $374K FY 79; $374K FY 80; $374K

470. Effects of Pollutants on Microbial Activities in Estuarine Surface Films

Studies of the rates of bioaccumulation and/or degradation of select hydrocarbons, pesticides and chlorinated aromatics by representative surface slick microorganisms.

D.G. Ahearn; Georgia State Univ., 35 Gilmer St., SE, Atlanta, GA 30303
FY 78; $10K FY 79; † FY 80; †

471. The Determination of Halogenated Compounds Dynamics in Marine and Estuarine Waters and Their Effects on Marine and Estuarine Organisms

Halogenated compounds formed when chlorine is added to seawater

Marine Ecology Studies (Gulf Breeze Lab.) (continued)

will be identified. Initial emphasis will describe the inorganic and organic reactions which lead to long lasting by-products.

William P. Davis; USEPA, Bears Bluff Field Stat., Johns Is., S.C.
FY 78; $199K FY 79; $199K FY 80; $199K

472. Toxicity Testing: Inter-Laboratory Comparison With Marine Animals

Saltwater static toxicity tests with silver nitrate and endosulfan using 28-day old sheephead minnows, 2-day old Mysidopsis bahia and adult Acartia tonsa and flow-through toxicity tests with silver nitrate and endosulfan using sheephead minnows and Mysidipsis bahia.

Steven C. Schmimmel; ERL, Env. Res. Lab., Gulf Breeze, FL
FY 78; $50K FY 79; † FY 80; †

473. Oil and Hazardous Substance Ecological Damage Assessment Research Coordination

Effect research coordination of oil and hazardous substance spill ecological damage assessment by developing portable sampling and analysis capability and establishing information base and rapport with institutions concerned with spills of petroleum and hazardous/toxic materials.

William Davis; USEPA, Bears Bluff Field Stat., Johns Is., S.C.
FY 78; $100K FY 79; † FY 80; †

474. Determine Toxicity to Marine Organisms of Petrochemicals and Energy Related Organic Solvents Derived From Off-Shore Activities and Ocean Dumping

Access the affects of petroleum emissions on marine organisms and communitites.

Norman L. Richards; USEPA,Env. Res. Lab., Gulf Breeze, FL
FY 78; $173K FY 79; $173K FY 80; $173K

475. Microbial Degradation of Hydrocarbons in Experimental Microbial Ecosystems

Determine the fate of hazardous organic compounds, including petroleum hydrocarbons and pesticides, both singly and in combination, in marine ecosystems.

Hap Pritchard; USEPA, Env. Res, Lab., Gulf Breeze, FL
FY 78; $25K FY 79; † FY 80; †

476. Environmental Assessment of Complex Industrial Wastes

Estimate the potential impact of liquid industrial wastes on estuarine biota and develop biological and chemical methods for analysis of waste.

Gerald Walsh; USEPA, Env. Res. Lab., Gulf Breeze, FL
FY 78; $100K FY 79; $100K FY 80; †

477. Monitor Chesapeake Bay Extramural Research Program

Provide administrative and technical support to organize and monitor the Chesapeake Bay Extramural Research Program.

Tudor T. Davies; USEPA, Env. Res. Lab., Gulf Breeze, FL
FY 78; $50K FY 79; $50K FY 80; *

478. Assessment of the Use of Aquatic Species As Carcinogen Test Systems

Aquatic animals will be studied in order to select species sensitive to carcinogens and develop methods for utilizing these species as indicators or monitors of the role carcinogens play in the environment.

John A. Couch; USEPA; Env. Res. Lab., Gulf Breeze, FL
FY 78; $83K FY 79; † FY 80; †

479. Oxidation and Conjunction of Carcinogenic Hydrocarbons in Marine Animals

Selected fish and shellfish metabolic oxidation products will be studied to determine the extent and types of conjugated products formed by these organisms.

D. Ralph Strength; Auburn Univ., Auburn, Alabama 36830
FY 78; $56K FY 79; $56K FY 80; $56K

480. Negative Ion Screening for Marine Xenobiotic Chemicals

Develop chemical screening methods for the detection and molecular identification of mutagenic, carcinogenic, and teratogenic

Marine Ecology Studies (Gulf Breeze Lab.) (continued)

substances in marine organisms.

Ralph C. Dougherty; Florida State Univ., Tallahassee, Florida 32306
FY 78; $35K FY 79; † FY 80; †

481. Investigation of Chemical Mutagen Accumulation in the Tissues of Marine Organisms

Identify marine organisms which accumulate detectable levels of mutagenic of promutagenic compounds in their tissues as a result of experimental or natural exposure to pollution.

John Baylis, Jr.; Univ. of West Florida, Pensacola, Fla. 32504
FY 78; $36K FY 79; † FY 80; †

482. Metabolism of Polyaromatic Hydrocarbons by Mixed Function Oxidases in Marine Organisms

Mixed Function Oxidases will be induced in certain marine organisms and resulting enzymes will be evaluated for mutagenicity.

Paul Melius; Auburn Univ., Auburn, Alabama 36830
FY 78; $50K FY 79; $50K FY 80; $50K

483. Development of a Carcinogen Assay System Utilizing Estuarine Fishes

Develop a carcinogen assay system that employs estuarine fish maintained in a controlled environment.

J. Martin; Univ. of Southern Mississippi, Southern Station, P.O. Box 1, Hattiesburg, Mississippi 39401
FY 78; $70K FY 79; $70K FY 80; $70K

484. Effects of Compounds Produced from Petroleum Utilization on Selected Marine Invertebrates with Particular Emphasis on Neoplasia and Carcinogenesis

Bivalve mollusks from different habitats are analyzed for the presence and amount of benzo(a)pyrene (BAP) monthly or bimonthly. Histological sections are prepared so that diagnoses can be made and neoplastic diseases, if present, can be identified.

Michael C. Mix; Oregon State Univ., Corvallis, Oregon 97331
FY 78; $20K FY 79; † FY 80; †

Marine Ecology Studies (Gulf Breeze Lab.) (continued)

485. Effects of Compounds Produced from Petroleum Utilization

Measure baseline levels of PAH in indigenous bivalve mollusks to demonstrate the practicality of monitoring and surveillance studies.

Michael C. Mix; USEPA Env. Res. Lab., Gulf Breeze, FL,
FY 78; \$50K FY 79; \$50K FY 80; †

486. Marine Protozoan Microsomal Activation of Oil Pollutants to Mutagens

The project consists of the isolation and characterization of microsomes from various marine protozoa, as well as predicting the fate of selected compounds with mutagenic and pre-mutagenic activities.

Donald G. Lindmark; Rockefeller Univ. 1230 York Ave., N.Y., N.Y. 10021
FY 78; \$50K FY 79; † FY 80; †

487. Investigation of Enzymatic Screening Tests for Mutagens in Environmental Pollutants

Study the feasibility of the *in vitro* activation of microsomal drug-metabolizing enzyme systems for the development of a rapid and sensitive prescreening test for mutagenicity of synfuel related environmental pollutants, their derivatives, and their metabolic products as they may occur on land and in aquatic and marine environments.

Josef Schmidt-Collerus; USEPA, Univ. of Denver, 2199 South Univ. Blvd., Denver, CO 80210
FY 78; \$20K FY 79; † FY 80; †

488. Metabolism of Carcinogens by Marine Animals

Determine whether or not estuarine and marine organisms can activate carcinogens from precarcinogens to true carcinogens like their mammalian counterparts.

W. Peter Shoor; USEPA, Env. Res. Lab., Gulf Breeze, FL
FY 78; \$171K FY 79; \$171K FY 80; \$171K

Marine Ecology Studies (Narragansett Lab.)

489. National Marine Pollution Monitoring Program

Monitoring of four collectives of pollutants in the U.S. coastal waters is being carried out by measurements of their concentrations in two groups of sentinel organisms -- mussels and oysters.

Edward D. Goldberg; Univ. of California, P.O. Box 109, La Jolla, CA 92037
FY 78; † FY 79; $350K FY 80; $300K

490. Coastal Environmental Assessment Station

Develop methodology for the direct assessment of the impact of anthropogenic imput in the coastal environment on marine organisms, especially organisms which are part of the food chain to man.

Donald K. Phelps; USEPA, Env. Res. Lab., South Ferry Road, Narrangansett, R.I. 02882
FY 78; $131K FY 79; † FY 80; †

491. Effects of Thermal Additions on the Dynamics of Fouling Communities at Beaufort

A laboratory system provides running seawater at ambient temperature and at 2°C, 4°C, and 3°C above ambient. Fouling development and changes in fouling community structure is followed at each temperature for several years on clay tile plates (232 cm^2) submerged in October 1975 and April 1976.

William W. Kirby-Smith; Duke Univ., Durham, N.C. 27706
FY 78; $70K FY 79; † FY 80; †

492. Nutritional Requirements of Marine Larval and Juvenile Fishes

Determination of laboratory diet(s) for larval and juvenile marine fishes with emphasis on development of a standard diet regime for test organisms utilized in toxicological bioassays to eliminate variable response due to nutritional stress.

Allan D. Beck; USEPA Env. Res. Lab., Narragansett, RI
FY 78; $160K FY 79; $160K FY 80; †

Marine Ecology Studies (Narragansett Lab.) (continued)

493. Development of Chronic/Life Cycle Bioassay Methods

Development of whole/partial life cycle bioassays that permit assessment of pollutant impact on growth, survival, and reproduction of fish, annelids, mollusks, and crustaceans.

John Gentile; USEPA Env. Res. Lab., Narragansett, RI
FY 78; $180K FY 79; $180K FY 80; $180K

494. Behavioral and Physiological Indices of Pollution Stress in Zooplankton & Invertebrate Larvae

Elucidate a series of sub-lethal behavioral and physiological parameters to quantify pollutant stress in zooplankton and motile invertebrate larvae.

Don C. Miller; USEPA Env. Res. Lab., Narragansett, RI
FY 78; $100K FY 79; $100K FY 80; $100K

495. Development of a Benthic Bioassay System Employing Natural Assemblages

Develop a benthic bioassay system, with an ecologically meaningful set of sub-lethal response parameters for the deposit-feeding fauna.

Wayne Davis; USEPA Env. Res. Lab., Narragansett, RI
FY 78; $40K FY 79; $40K FY 80; $40K

496. Development and Application of Marine Assays for Detection and Assessment of Genetic Toxicants Under Laboratory/Field Conditions

Development of short-term assays utilizing selected marine organisms for identification and assessment of genetic toxicants in laboratory/field situations.

Gerald G. Pesch; USEPA Env. Res. Lab., Narragansett, RI
FY 78; $60K FY 79; $60K FY 80; $60K

497. Further Development and Application of in Vitro Mammaliam Cell Assays for Detection and Assessment of Genetic Toxicants

A battery of *in vitro* mammalian cell assays utilizing different cell lines and various end points is being validated and further developed for application.

Alexander R. Malcolm; USEPA Env. Res. Lab., Narragansett, RI
FY 78; $200K FY 79; $200K FY 80; $200K

Marine Ecology Studies (Narragansett Lab.) (continued)

498. In Situ Marine Bioassay Development

Develop methods to establish lethal and sublethal limits during short and long exposure of selected marine organisms to environmental conditions in polluted estuarine waters.

Bruce H. Reynolds; USEPA ERL, Narragansett, RI
FY 78; $20K FY 79; † FY 80; †

499. Toxicity Testing: Inter-Laboratory Comparison with Marine Animals

Provide quality control of selected bioassay procedures. Physiological response as a function of specific toxicant concentration are the main parameters studied.

Jack Gentile; USEPA ERL, Narragansett, RI
FY 78; $50K FY 79; † FY 80; †

500. Effects of Thermal Addition on Marine Fouling Community Dynamics

Supplement the existing data base for marine water quality criteria for temperature.

Don Miller; USEPA ERL, Narragansett, RI
FY 78; $40K FY 79; † FY 80; †

501. Oil Spill Response Research, North Atlantic Coast (Norfolk, Virginia to Eastport, Maine)

Evaluate the applicability of present sampling and field measurement techniques under adverse conditions caused by major spills and to develop improved methods or protocols as appropriate.

Robert R. Payne; USEPA Env. Res. Lab., Narragansett, RI
FY 78; $100K FY 79; $100K FY 80; †

502. Effects of Oil on Reproductive Stages of Marine Macroalgae

Determine effects of various oils on reproduction of marine macroalgae.

Richard L. Steele; USEPA Env. Res. Lab., Narragansett, RI
FY 78; $50K FY 79; $50K FY 80; †

503. Chemical Studies Directed Towards Ecological Damage Assessment of Petroleum Discharges into the Marine Environment

Conduct analytical chemical studies in support of ecological damage

Marine Ecology Studies (Narragansett Lab.) (continued)

assessment of acute and chronic discharges of petroleum into the near-shore marine environment.

James G. Quinn; USEPA ERL, Narragansett, RI
FY 78; $30K FY 79; $30K FY 80; $30K

504. Persistence Limits: A Management Strategy for Natural Ecosystems

Establish persistence limits for natural marine ecosystems under various anthropogenic stressors. A persistence limit is the perturbed state from which an ecosystem can return to its original quasi-equilibrium state once the perturbation is relaxed.

Ken Perez; USEPA Env. Res. Lab., Narragansett, RI
FY 78; $270K FY 79; $270K FY 80; $270K

505. Kaneohe Bay: Responses of a Tropical Estuary to Relaxation of Sewage Stress

To ascertain the biological and chemical responses of a tropical coral reef/estuary ecosystem to the termination of sewage stress. To what extent and at what rate does the ecosystem return to pre-stress conditions?

Stephen V. Smith; Univ. of Hawaii, 2444 Dole St., Honolulu, Hawaii 96822
FY 78; $180K FY 79; † FY 80; †

506. Marine Ecosystems Research Laboratory (MERL)

Design, develop and operate experimental marine ecosystems. Investigate the behavior of these systems and the organisms which live in them and from these studies, examine the feasibility of using large microcosms to improve our understanding of the behavior of natural systems.

Michael E.Q. Pilson; Marine Ecosystems Res. Lab.; Graduate School of Oceanography, Univ. of Rhode Island, Kingston, R.I. 02881
FY 78; $948K FY 79; $948K FY 80; $948K

507. Bioaccumulation Kinetics of Marine Invertebrates

Define the bioaccumulation and depuration kinetics for a variety of pollutants by marine molluscs and crustaceans. Organisms are chronically exposed to pollutants at low concentrations from 1 to 20 weeks and examined for uptake, depuration, histopathological damage, and effect on reproduction.

Gerald Zaroogian; USEPA Env. Res. Lab., Narragansett, RI
FY 78; $72K FY 79; † FY 80; †

Marine Ecology Studies (Narragansett Lab.) (continued)

508. Trace Element Analysis of Marine Systems

Techniques to measure many trace elements in water, sediment, and organisms by a variety of analytical techniques are being developed.

Peter Rogerson; USEPA Env. Res. Lab., Narragansett, RI
FY 78; $128K FY 79; $128K FY 80; $128K

509. Trace Element Analysis of Marine Systems

The basic technique for measuring ATP in water samples by the light-emitting luciferin-luciferose reaction is well established. Variables such as filter type, water volume, physiological state of the phytoplankton, and presence of bacteria remain to be clarified.

Sue Cheer; USEPA Env. Res. Lab., Narragansett, RI
FY 78; $45K FY 79; $45K FY 80; †

510. Modulating Environmental Variable Bioassay System

The bioassay system has been complete for salinity studies and will be evaluated before a temperature mode is added. Data has been collected and is being analyzed for one toxicant with the larvae of two fish species. Systematic evaluation of this system will be initiated using fish embryo-larvae, mysid shrimp, and mollusks for selected classes of pollutants.

Richard Voyer; USEPA Env. Res. Lab., Narragansett, RI
FY 78; $60K FY 79; $60K FY 80; $60K

511. Study of Caribbean Rum Distillers

Determine if there is merit in the argument that raw waste water from rum distillers may be discharged without harm to the marine (Caribbean) environment.

Frank Lowman; USEPA Env. Res. Lab., Narragansett, RI
FY 78; $375K FY 79; † FY 80; †

EPA Energy/Environment Interagency Program (NOAA/DOC)

512. Environmental Assessment of Northern Puget Sound & the Strait of Juan De Fuca

Output products will include a detailed characterization of the major marine biological populations at risk and a description of

EPA Energy/Environment Interagency Program (NOAA/DOC)(continued)

the physical and chemical processes which transport petroleum hydrocarbons through the ecosystem.

H.S. Harris; PMEL NOAA, Seattle, Washington
FY 78; $850K FY 79; $850K FY 80; †

513. Environmental Assessment of An Active Oil Field in the Northwestern Gulf of Mexico

To identify and document the extent and types of biological, chemical and physical alternations in a marine ecosystem that are associated with the development of and production of discharges from an oil field to determine the specific pollutants, their quantity, and effects on the various components of the marine ecosystem.

C.W. Hall; USEPA, 401 "M" St., SW, Washington, D.C. 20460
FY 78; $600K FY 79; $600K FY 80; †

514. Fate and Effects of Petroleum Hydrocarbons and Toxic Metals in Selected Marine Ecosystems and Organisms

The overall approach of this project is to study experimentally specific processes controlling the distribution, transport, and effects of petroleum hydrocarbons and selected toxic metals in subarctic coastal marine ecosystems to facilitate the assessment of the impacts of petroleum releases in this ecosystem type.

C.W. Hall; EPA (as above)
FY 78; $455K FY 79; $425K FY 80; †

515. Prince William Sound Ecological Study

This project is examining the impact of potential oil development on the Puget Sound environment.

Al Galli; USEPA, 401 "M" St. SW, Washington, D.C. 20460
FY 78; † Fx 79; $50K FY 80; †

516. Ocean Spill Concentration and Trajectory Forecast

Develop an oil spill trajectory model and to implement the model in NOAA. The model will be used in an operational mode during oil spill episodes.

C.W. Hall; EPA (as above)
FY 78; $150K FY 79; $150K FY 80; †

EPA Energy/Environment Interagency Program (NOAA/DOC) (continued)

517. HF Radar for Mapping Circulation in Eastern Straits of Juan de Fuca (NOAA)

Develop and assess application of NOAA's Wave Propagation Laboratory's Radar System in characterizing circulation in the eastern area of the Juan de Fuca Straits. Measurements and analyses to be accomplished in conjunction with NOAA/PMEL's environmental assessment project and NOAA/Puget Sound MESA experiment in the same area.

C.W. Hall, EPA (as above)
FY 78; $80K FY 79; $80K FY 80; †

518. Standardization and Intercalibration Techniques for Marine Monitoring (NOAA)

Develop standards for quality assessment of marine environmental monitoring data.

C.W. Hall, EPA (as above)
FY 78; $160K FY 79; $160K FY 80; †

EPA Energy/Environment Interagency Program (NIEHS/DHEW)

519. Carcinogenic Effects of Petroleum Hydrocarbons on Selected Marine and Estuarine Organisms

To compare incidence of tumors, particularly epidermal papillomas, in exposure and control groups of selected flatfish species in response to exposure to benzo(a)pyrene (BAP) and/or its electrophilic derivatives and to qualitatively examine the histopathology of comparable tumors occurring in both exposure and control groups.

C.W. Hall; EPA (as above)
FY 78; $30K FY 79; $30K FY 80; †

520. In Vitro Metabolism of Xenobiotics by Selected Marine Species

Investigation of the biotransformation of foreign organic compounds in hepatic and extrahepatic tissues of vertebrate and invertebrate marine species from coastal Maine and Florida.

C.W. Hall; EPA (as above)
FY 78; $70K FY 79; $70K FY 80; †

521. Metals in Marine Organisms

Determine the various mechanisms by which cells of marine organisms

EPA Energy/Environment Interagency Program (NIEHS/DHEW) (continued)

take up metal ions from their environment and compare these mechanisms with those of mammals.

C.W. Hall; EPA (as above)
FY 78; $40K FY 79; $40K FY 80; †

522. Hydrocarbons in Marine Species

This project examines the biochemical behavior of hydrocarbons ingested by marine fish.

C.W. Hall; EPA (as above)
FY 78; $40K FY 79; $40K FY 80; †

EPA Energy/Environment Interagency Program (FWS/DOI)

523. Ecological and Physiological/Toxicological Effects of Oil on Birds

Evaluate the effects on birds of exposure to petroleum and/or components by dietary intake or by exposure of eggs. Effects measured include physiological functions, reproductive performance, survival and tissue accumulation.

C.W. Hall; EPA (as above)
FY 78; $300K FY 79; † FY 80; †

524. Major Coastal Ecosystem Characterization and Methodology with Emphasis on Fish and Wildlife as Related to Oil and Gas Development

Standardized methodologies and specifications for conducting ecological characterizations.

FY 78; $600K FY 79; $900K FY 79; †

EPA Energy/Environment Interagency Program (NBS/DOC)

525. Energy Related Water Pollutant Analyses Instrumentation

To release a series of standard reference materials for trace petroleum in water analyses.

C.W. Hall; EPA (as above)
FY 78; $100K FY 79; $100K FY 80; †

EPA Energy/Environment Interagency Program (DOE)

526. Determine Long-Term Effects of Hydrocarbons on Selected Ecosystems and Associated Organisms

Results of research on the uptake of petroleum hydrocarbons from contaminated sediments by benthics in fauna.

C.W. Hall; EPA (as above)
FY 78; $120K FY 79; $122K FY 80; †

527. Santa Barbara Oil Lease Area Study

Complete environmental data base on Santa Barbara oil lease area relative to oil extraction and transport and related effects on coastal ecosystems.

C.W. Hall; EPA (as above)
FY 78; $120K FY 79; $120K FY 80; †

Basic Water Quality Monitoring Program

528. State and Interstate Quality Monitoring Activities

The goal is to conduct an intensive survey at least once within five years on every river, lake, estuary, bay or aquifer where waste loads are allocated or significant water quality changes have either been identified or are considered possible.

Fred Leutner; USEPA, 401 "M" St, S.W, Washington, D.C. 20460
FY 78; $200K FY 79; $200K FY 80; $200K

529. State Monitoring Programs

Section 106 of the Water Quality act requires partial funding of the States' water pollution control program. In FY 78 $52 million was provided the States for this purpose. Of the total, $11.3 million was given to operate an ambient water quality monitoring program. Five percent or $550K of EPA's share of the States program is directed to marine/estuarine monitoring. The States share has been $24 million to give a total state run water monitoring program of $35.3 million. The main objective of a State run program is to assess the effectiveness of the States' pollution control program. Data is generally stored in the STORET system.

Fred Luetner; USEPA, Washington, D.C. 20460
FY 78; $550K FY 79; $550K FY 80; $550K

Basic Water Quality Monitoring Program (continued)

530. National Water Quality Surveillance System (NWQSS)

The NWQSS is a USGS operated project supported with EPA funding. It consists of 188 stations nationwide that are paired to provide coverage both above and below major types of land use areas. The stations are sampled biweekly and analysis performed for water quality parameters. Data are stored in the STORET computer System.

Fred Leutner; USEPA, 401 "M" St., NW, Washington, D.C. 20460
FY 78; $550K FY 79; $550K FY 80; $550K

Great Lakes National Program

531. Open Lake Monitoring

Implementation of the U.S. portion of the International Monitoring Program for the Great Lakes. Includes open lake survey, nearshore monitoring, tributary monitoring to determine loadings, water intake monitoring and specialized research to meet the objectives of the monitoring program.

Bob Bowden; USEPA, Great Lakes National Program, Chicago, IL
FY 78; $3604K FY 79; $3604K FY 80; $3200K

532. Mill Creek Continuation Monitoring

The objective is to continue the water quality monitoring of Mill Creek to evaluate the impact of the runoff from an orchard area on stream water quality.

Ralph Christenson; USEPA, Great Lakes National Program, Chicago
FY 78; $45K FY 79; $45K FY 80; †

533. Continuing Monitoring for Menomonee River Pilot Watershed

Continuation monitoring on the Menomonee River is to provide additional data for determining total pollutant loadings being discharged into Lake Michigan from land use activities.

Ralph Christenson; USEPA, Great Lakes National Program, Chicago
FY 78; $79K FY 79; $79K FY 80; †

Evaluation of Radioactive Waste Dumpsites

534. Evaluation of Problems and Limitations of Ocean Disposal as a Radioactive Waste Management Alternative

Determine the fate and behavior of radioactive waste packages and

Evaluation of Radioactive Waste Dump Sites (continued)

waste dumpsites between 1946-1970.

R. Dyer; USEPA, 401 "M" St., S.W. Washington, D.C. 20460
FY 78; $545K FY 79; $830K FY 80; $900K

Ocean Dumpsite Evaluation Program

535. Baseline Surveys and Monitoring of Ocean Dumping Sites

Conduct surveys of ocean dump sites to evaluate environmental impact, subsequently write Environmental Impact Statement (EIS), and finally designate site.

T.A. Wastler; USEPA, 401 "M" St., S.W. Washington, D.C. 20460
FY 78; $1500K FY 79; $1500K FY 80; $1700K

Chesapeake Bay Program

536. Mapping the Distribution and Abundance of Submerged Aquatic Vegetation (SAV) in the Chesapeake Bay

An inventory of the distribution of bottom vegetation will be obtained through the use of aerial photography and underwater surveys. The dynamic processes which regulate the decline and resurgence of SAV are being investigated.

Thomas Nugent; EPA-Chesapeake Bay Program, Annapolis, MD
FY 78; $68.7K FY 79; † FY 80; †

537. Functional Ecology of Submerged Aquatic Vegetation in the Lower Chesapeake Bay

Through the use of various technical approaches, this study will determine the primary production of the baygrass communities, the role of living organisms in the baygrass communities, and initiate model simulation studies.

Thomas Nugent; EPA-Chesapeake Bay Program, Annapolis, MD
FY 78; $629.9K FY 79; † FY 80; †

538. Zostera Marina: Biology, Propagation, and Effects of Herbicides

This projects consists of two parts. The first deals with the growth and propagation of Zostera Marina (eelgrass). This is

Chesapeake Bay Program (continued)

to assist in understanding eelgrass. The second element of the project concerns the effects of herbicides on eelgrass.

Thomas Nugent; EPA-Chesapeake Bay Program, Annapolis, MD
FY 78; $319.1K FY 79; † FY 80; †

539. Distribution of Submerged Vascular Plants in Chesapeake Bay, Maryland

Through the use of aerial photography and field surveys, the distribution of submerged aquatic plants in the Chesapeake Bay will be determined.

Thomas Nugent; EPA-Chesapeake Bay Program, Annapolis, MD
FY 78; $137.4K FY 79; † FY 80; †

540. Submerged Aquatic Vegetation in the Chesapeake Bay

This study will investigate the decline of submerged aquatic vegetation (SAV) and its affect on other Bay organisms.

Thomas Nugent; EPA-Chesapeake Bay Program, Annapolis, MD
FY 78; $639.3K FY 79; † FY 80; †

541. Biostratigraphy of the Chesapeake Bay and its Tributaries: Submerged Aquatic Vegetation and Eutrophication

Sediment deposition in the Bay and its tributaries entraps and preserves selected organisms and chemicals. These can be isolated and identified to provide a quantitative index of chemical and biological conditions at the time of deposition.

Thomas Nugent; EPA-Chesapeake Bay Program, Annapolis, MD
FY 78; $134.7K FY 79; † FY 80; †

542. Studies on the Value of Vegetated Habitats and Their Roles as Nursery Areas and Shelter from Predation with Emphasis on Utilization by Commercially Exploited Species

This research will estimate the density of crustaceans and fishes in vegetated areas.

Thomas Nugent; EPA-Chesapeake Bay Program, Annapolis, MD
FY 78; $48.7K FY 79; † FY 80; †

543. Waterfowl and SAV Relationship and SAV Management

This grant will determine the relationship of submerged aquatic vegetation to migratory waterfowl in the Chesapeake Bay, and will synthesize summarized data on SAV and interpret its role in

Chesapeake Bay Program (continued)

the Chesapeake Bay ecosystem.

Thomas Nugent; EPA-Chesapeake Bay Program, Annapolis, MD
FY 78; $228.4K FY 79; † FY 80; †

544. Physical Effects of Boating on Submerged Aquatic Vegetation

To assess the effects of boating on suspended sediments, erosion, and submerged aquatic vegetation in the Bay.

Thomas Nugent; EPA-Chesapeake Bay Program, Annapolis, MD
FY 78; $28.6K FY 79; † FY 80; †

545. The Biogenic Structure of the Chesapeake Bay Sediments

This project involves sampling of approximately thirty sites to study the sediment water chemistry and the vertical distribution of benthic organisms.

Tudor T. Davies; EPA-Chesapeake Bay Program, Annapolis, MD
FY 78; $1.9K FY 79; † FY 80; †

546. Chesapeake Bay Earth Science Study - Interstitial Water Chemistry

The goals of this project are to characterize the chemical composition of the interstitial water and to assess the extent of transfer of toxics from the sediment to the water and biota.

Tudor T. Davis; EPA-Chesapeake Bay Program, Annapolis, MD
FY 78; $21.1K FY 79; † FY 80; †

547. Investigations of the Chester River Oyster Mortality

This project will investigate the abnormal and progressive mortality of oysters and other benthic organisms in the Chester River.

Tudor T. Davies; EPA-Chesapeake Bay Program, Annapolis, MD
FY 78; $77.9K FY 79; † FY 80; †

548. Fate, Transport, and Transformation of Toxics; Significance of Suspended Sediment and Fluid Mud

This project will initiate studies to determine the extent of contamination and fate of related toxic substances in suspended sediment and fluid mud of the Chesapeake Bay.

Tudor T. Davies; EPA-Chesapeake Bay Program, Annapolis, MD
FY 78; $146.4K FY 79; † FY 80; †

Chesapeake Bay Program (continued)

549. Environmental Monitoring and Support Laboratory (EPA), Las Vegas, Nevada

Research effort involves the undertaking of distribution and abundance analyses of the submerged grasses.

Thomas Nugent; EPA-Chesapeake Bay Program, Annapolis, MD
FY 78; $32K FY 79; † FY 80; †

550. Water Quality Laboratory at the Hampton Institute for the Chesapeake Bay and its Tributaries

The Hampton Institute will develop a water quality monitoring laboratory which will investigate the chemical water quality of the lower portion of the Chesapeake Bay.

Thomas Nugent; EPA-Chesapeake Bay Program, Annapolis, MD
FY 78; $315.5K FY 79; † FY 80; †

551. Fall-line Monitoring of Potomac, Susquehanna and James Rivers

This project will conduct a preliminary engineering reconnaissance and design study to identify specific equipment, methods, sampling sites, and schedules required to produce representatives monitoring information.

Thomas Nugent; EPA-Chesapeake Bay Program, Annapolis, MD
FY 78; $60K FY 79; † FY 80; †

552. Surveillance & Analysis Division Support (EPA, Region III including Annapolis Field Office)

Conducting baseline H_2O monitoring field work with the sampling on a monthly basis at approx. 50 sites. A study of herbicide loadings in the Susquehanna River Basin on a seasonal basis. Provision of technical expertise as required by Chesapeake Bay Program. (Grant proposal review and support).

Tom Nugent; EPA-Chesapeake Bay Program, Annapolis, MD
FY 78; $143.6K FY 79; † FY 80; †

553. Remote Sensing (EPA Support) (Environmental Monitoring & Support Laboratory, Las Vegas

Utilizing remote sensing techniques, EMSL will provide support to the Ches. Bay Program grantees conducting the aerial photography inventory aspects of research projects. EMSL will also analyze

Chesapeake Bay Program (continued)

various remote sensing approaches and will develop guidelines for the collection of remotely sensed data for present and future Ches. Bay Projects.

William Cook; EPA-Chesapeake Bay Program, Annapolis, MD
FY 78; $40K FY 79; † FY 80; †

554. Data Organization, Technical Support and Coordination for the Environmental Protection Agency's Chesapeake Bay Program

Assist development, implementation, and review of technical programs and will compile and review data generated from previous research efforts on the Chesapeake Bay.

Gregory McGinty; EPA-Chesapeake Bay Program, Annapolis, MD
FY 78; $13.5K FY 79; † FY 80; †

555. Development and Coordination of Technical Assessments, Scientific Planning and Data Organization for the Chesapeake Bay Program

To provide Maryland planning and technical support and assistance to the Chesapeake Bay Program, Annapolis, MD.

William Cook; EPA-Chesapeake Bay Program, Annapolis, MD
FY 78; $10K FY 79; † FY 80; †

556. Environmental Effects of Mosquito Eradication (Maryland Department of Agriculture)

To evaluate ecological changes resulting from implementation of open marsh H_2O management techniques designed to suppress mosquito production as well as the case of insecticides and to use this data to develop an ecologically acceptable model for integrated pest management for mosquito control in the Chesapeake Bay and similar areas in the U.S.

L. Mangiaiacina; USEPA, Philadelphia, PA
FY 78; $100K FY 79; † FY 80; †

557. Preparation of a Strategy and Plan of Action for Designing the Research of Management Resources for the Chesapeake Bay Area (Trustees of the University of Pennsylvania)

Grant was made to assist the Chesapeake Bay Program in the preparation of a strategy and plan of action for designing the research of the management system in the Chesapeake Bay drainage basin.

Chesapeake Bay Program (continued)

Gregory McGinty; EPA-Chesapeake Bay Program, Annapolis, MD
FY 78; $9.1K FY 79; † FY 80; †

558. Quality Assurance for the Chesapeake Bay Program (Environmental Monitoring and Support Laboratory, Las Vegas)

EMSL (Las Vegas) will serve as quality control coordinator for Chesapeake Bay Program and serve as focal point for all quality assurance activity.

William Cook; EPA-Chesapeake Bay Program, Annapolis, MD
FY 78; $12K FY 79; † FY 80; †

559. Evaluation of Management Tools in Three (3) Chesapeake Bay Watersheds in Virginia

This study includes compilation of all usable data for each watershed, a determination of additional data requirements, the development of a field sampling and monitoring program to fill the data gaps, laboratory analysis of the samples, evaluation and recommendations on water quality management strategies for each watershed.

Thomas Pheiffer; EPA-Chesapeake Bay Program, Annapolis, MD
FY 78; $999.2K FY 79; † FY 80; †

560. Assessment of Pollutants from Waste Water (Amendment - Mass Balance Loading) (University of North Carolina)

A sequence of calculations will be performed according to procedures supplied by EPA to yield mass balances of nutrients and toxicants in Chesapeake Bay.

William Cook; EPA-Chesapeake Bay Program, Annapolis, MD
FY 78; $5K FY 79; † FY 80; †

561. Definition of Chesapeake Bay Problems of Excessive Enrichment of Eutrophication

This study will undertake several related projects. These projects will include a definition of eutrophication processes for future modelling; an inventory of historical water quality data for the Bay; a comparison of this data to changes in levels of dissolved oxygen and other related "indicators" to the changes in the Bay's ecosystem; a report on the trophic state of the Chesapeake Bay; and, a definition of the needs for future research and monitoring

Chesapeake Bay Program (continued)

of conditions in the Chesapeake Bay.

Thomas Pheiffer; EPA-Chesapeake Bay Program, Annapolis, MD
FY 78; $338.4K FY 79; † FY 80; †

562. Intensive Watershed Study

The work is to be performed includes the description of existing management programs and data collection in the Patuxent River basin, identification of additional program and data needs, selection of management tools, collection of data where deficiencies exist, and most importantly the calibration of water quality models.

Thomas Pheiffer; EPA-Chesapeake Bay Program, Annapolis, MD
FY 78; $452.3K FY 79; † FY 80; †

563. Evaluation of Water Quality Mangement Tools in the Chester River Basin

The work to be performed includes the description of existing management programs and data collection in the Chester River basin, identification of additional program and data needs, selection of management tools, collection of data where deficiencies exist, and most importantly the calibration of water quality models.

Thomas Pheiffer; EPA-Chesapeake Bay Program, Annapolis, MD
FY 78; $97K FY 79; † FY 80; †

564. Non-Point Source Modelling (Hydrocomp. Inc., through EPA Athens, Georgia) Contract Completed

Preliminary design of sampling programs to characterize non-point pollutant transport into selected sub-estuaries of Chesapeake Bay.

William Cook; EPA-Chesapeake Bay Program, Annapolis, MD
FY 78; $7.5K FY 79; † FY 80; †

565. Chesapeake Bay Circulation Model (Competitive Contract)

Develop a transport model of the Chesapeake Bay and its tidal tributaries. Predict transport and dispersion of various pollutant throughout the Chesapeake Bay.

Thomas Pheiffer; EPA-Chesapeake Bay Program, Annapolis, MD
FY 78; † FY 79; $200K FY 80; $125K

Chesapeake Bay Program (continued)

566. Chesapeake Bay Program Staff

Salaries and benefits, training, travel etc.

Robin Pittman; EPA-Chesapeake Bay Program, Annapolis, MD
FY 78; $233K FY 79; † FY 80; †

567. Administrative Services Support

Office management.

Robin Pittman; EPA-Chesapeake Bay Program, Annapolis, MD
FY 78; $3.2K FY 79; † FY 80; †

DOE Energy Transfer Program

567a. Effects of Petroleum Hydrocarbons on Behavior of Marine Organisms

The basic aim of the research is to observe and describe patterns of behavior in marine organisms as related to life habits and environmental requirements. Once established, the various strategies possessed by the organism to deal with the total range of selected environmental factors can be identified, including those levels which may be stressful.

Charles I. Gibson; Battelle Northwest Laboratory, Sequim, WA
FY 78; † FY 79; $90K FY 80; $90K

567b. Effects of Petroleum Hydrocarbons in Marine Ecosystems--Puget Sound

The objectives in this program are to identify potential population and community response parameters and provide estimates of changes in these parameters in the field. Emphasis is placed on identification of parameters for which statistically valid estimates can be made at specific field sites in proximity to petroleum industry operations.

J.R. Vanderhorst; Battelle Northwest Laboratory, Sequim, WA
FY 78; † FY 79; $83K FY 80; $83K

567c. Long-Term Hydrocarbon Effects on Organisms and Communities in NW Coastal Ecosystems

This research program has been designed to provide data necessary to access effects of long-term exposure to petroleum hydrocarbons

DOE Energy Transfer Program (continued)

on selected organisms and communities from the northwest U.S. coastal ecosystems.

D.R. Anderson; Battelle Northwest Laboratory, Sequim, WA
FY 78; †   FY 79; $165K   FY 80; $165K

567d. Fate and Effects of Hydrocarbons in California Coastal Environment

This is a study of ecological phenomena around a natural oil seep, hydrocarbon effects and process can be realistically studied that would be anticipated by increased oil pollution in the Santa Barbara Channel. For the past 2 years, studies have been made of faunal communities living in the well-oiled sediments of the seep and a nearby control area.

Robert B. Spies; Lawrence Livermore Lab., Univ. of Cal. Berkeley, CA
FY 78; †   FY 79; $83K   FY 80; $83K

567e. Natural Hydrocarbon Distribution in Puget Sound

Seasonal samplings of phytoplankton, zooplankton, and neuston are being made in a number of areas within Puget Sound and off the west coast of Washington State north of the Columbia River. Measurements are being made to establish the natural distribution of hydrocarbons in local marine organisms and sediments and to determine the extent to which they may be already contaminated by petroleum hydrocarbons from chronic oil spills. Some of the regions being sampled are in comparatively remote areas which are unlikely to have received significant oil pollution while other samples come from areas near petroleum refineries or along tanker routes where spills are more likely.

Roy Carpenter; University of Washington, Seattle, WA
FY 78; †   FY 79; $170K   FY 80; $170K

567f. Effects of Sublethal Levels of Oil on Behavior and Chemoreception of Aquatic Animals

Studies are underway of the effects of temperature and of petroleum hydrocarbon fractures on the behavioral responses of catfish, lobsters, and marine snails.

Jelle Atema; Boston University, Boston, MA
FY 78; †   FY 79; $66K   FY 80; $66K

DOE Energy Transfer Program (continued)

567g. Toxicant Formation in Condenser Cooling Systems

The overall goal of this research is development of the ability to predict the environmental effects of toxicants resulting from efficient operation of condenser cooling systems. The research in progress involves chlorine optimization for which two criteria are important: (1) Determination of the minimum dose requirements needed to control fouling and (2) estimation of the environmental effects of releases at that level.

R.W. Brocksen; Oak Ridge National Laboratory, Oak Ridge, TN
FY 78; †　　FY 79; $207K　　FY 80; $207K

DEPARTMENT OF HEALTH, EDUCATION & WELFARE

Funding Summary

(in thousands of dollars)

	FY 78	FY 79	FY 80
National Institutes of Health	$1,278	$1,148	$1,013
Food and Drug Administration	$2,620	$2,585	$2,570
TOTALS	$3,898	$3,733	$3,583 *

* Some projects were completed in FY 78 and FY 79. Additional projects (as yet unspecified) will be initiated in FY 80. Total funding is expected to be similar to FY 78.

National Institutes of Health (NIEHS)

568. Administrative Services Support

Office management.

Robin Pittman, EPA-Chesapeake Bay Program
FY 78; $3.2K FY 79; † FY 80; †

568a. In Vitro Metabolism of Xenobiotics by Selected Marine Species

Compare hepatic and extrahepatic microsomal xenobiotic metabolism in several vertebrate and invertebrate marine species.

John R. Bend; NIEHS
FY 78; $155K FY 79; $170.5K FY 80; $170.5K

569. Environmental Contaminants: Uptake, Distribution, Metabolism, Excretion, and Storage Sites in Marine Species

Study the in vivo uptake, distribution, metabolism and excretion of single purified radiolabeled environmental contaminants, in vertebrate and invertebrate marine species that serve as human food sources.

John R. Bend; NIEHS
FY 78; $ 69K FY 79; $ 75.9K FY 80; $ 75.9K

National Institutes of Health (continued)

570. Role of Altered Membrane Function in Xenobiotic Toxicity

Establish the mechanisms responsible for the sensitivity of crustacea to organochlorine compounds.

John Pritchard; NIEHS
FY 78; $75K FY 79; $82.5K FY 80; $82.5K

571. Excretion of Xenobiotic by Selected Marine and Terrestrial Species

Examine the role of organic ion transport in the renal and hepatic excretion of environmental contaminants such as DDT.

John Pritchard; NIEHS
FY 78; $ 80K FY 79; $ 88K FY 80; $ 88K

572. The Physiological Effects of Arsenic, Cadmium, and Copper on Marine Shellfish

Determine the physiological, biochemical, and ultrastructural effects of arsenic, cadium, and copper on tissues of marine shellfish in comparison with those previously observed in mammals.

B. A. Fowler; NIEHS
FY 78; $80K FY 79; $80K FY 80; $80K

573. Carcinogenic Effects of Petroleum Hydrocarbons on Selected Marine and Estuarine Organisms

Compare incidence and histopathy of tumors in exposure and control groups of selected flatfish species in response to exposure to benzo(a)pyrene (BaP).

J.R. Bend; NIEHS
FY 78; $54K FY 79; $61K FY 80; $0 K

574. Membrane Toxicity Theory and Environmental Pollutants

Evaluate comprehensively the physiological-biochemical-morphological effects of heavy metal, petroleum and organochlorine pollutants on osmoregulatory and nutritive membrane functions in selected species of aquatic birds and fish.

William B. Kinter; Mt. Desert Island Biological Lab
FY 78; $70.8K FY 79; $62.9K FY 80; $65.7

575. Virus Detection in Shellfish and Their Growing Waters

To develop and evaluate methods for quantitive detection of enteric viruses in oysters and clams in their growing waters.

Mark D. Sobsey; Univ. of North Carolina
FY 78; $44K   FY 79; *   FY 80; *

576. Effects of Hydrocarbons on Defense Mechanisms

Study the hard clam, the blue crab and the mummichog to show how hydrocarbons adversely affect defense mechanisms.

Marenes R. Tripp; Univ. of Delaware
FY 78; $59.3K   FY 79; $43.8K   FY 80; *

577. Environmental Pollutants and Membrane Transport

Identify DDT and heavy metal sensitive sites in bird and fish epithelia using new techniques of membrane biology.

David S. Miller; Mt. Desert Island Biological Lab
FY 78; $60.7K   FY 79; $46.1K   FY 80; $48K

578. Hepatitis A & Gastroenteritis Viruses in Water & Shellfish

Develop methodology for detecting and concentrating hepatitis virus type A and human rotavirus from potable water, sewage and shellfish.

Charles P. Gerba; Baylor College of Medicine
FY 78; $41.7K   FY 79; $36.1K   FY 80; $38.5K

579. Center for Environmental Management

Study environmental distribution and biological effects of heavy metals and petroleum use products on marine invertebrates.

Virgil H. Freed; Oregon State Univ.
FY 78; $81.9K   FY 79; $64.7K   FY 80; $68.7K

580. Research in the Environmental Health Sciences

Study radioecology of Hudson River and its estuary ecosystem, and selected tropical bethic marine protozoa.

Norton Nelson; New York Univ.
FY 78; $70K   FY 79; $52K   FY 80; *

DEPARTMENT OF HEALTH, EDUCATION AND WELFARE (NIEHS)

581. Duke University Marine Biomedical Center (NIEHS)

Study the biochemical and biological impact of metallic pollutants on marine systems.

Joseph Bonaventura; Duke Univ.

FY 78; $87.6K	FY 79; $78.2K	FY 80; $83.1K

582. NIEHS Marine/Freshwater Biomedical Center Grant

Conduct comparative studies of the effects of environmental factors on aquatic animal organ function and organ operation including effects on transport of material in and out of the plasia or neoplasia.

Lavern J. Weber; Oregon State Univ.

FY 78; $129.5K	FY 79; $106K	FY 80; $112K

583. NIEHS Marine and Freshwater Biomedical Research Center Grant

Develop and promote multidisciplinary research training and mutual assistance in the solution of human-related marine environmental health problems and the utilization of marine resources in basic research concerning human health problems.

Don Walsh; Univ. of Southern California

FY 78; $119.6K	FY 79; $100K	FY 80; $100K

Food and Drug Administration (FDA)

584. National Shellfish Sanitation Program (NSSP)

The NSSP is a state-Federal-industry program administered by FDA, for the sanitary control of the shellfish industry. FDA does not generally monitor state territoral waters (out to 3 miles), but provides technical assistance to state control agencies on request to study specific pollution problems. FDA monitors offshore dumping sites (beyond 3 miles) to determine effects of sludge dumping on the sanitary quality of the sea clam growing area waters and sediments and to provide necessary data to establish closure lines for sea clam harvesting. The NSSP research component (for the development of program standards and criteria) includes work on contaminants, such as viral and bacteriological microrganisms, toxic metals, radionuclides and naturally occuring marine toxins.

J. David Clem; FDA

FY 78; $2000K	FY 79; $2000K	FY 80; $2000K

585. Proliferative Cell Diseases of Mollusks

Study the public health significance of incidence and posssible etiology of neoplasms in oysters, mussels and other shellfish.

A. Rosenfield; HEW
FY 78; $25K   FY 79; *   FY 80; *

586. Market Basket Total Diet Program

The purpose is to indirectly monitor levels of pesticides, chemicals, heavy metals and radionuclides in food samples harvested from the oceans and estuaries.

Sanford A. Miller; Bureau of Foods, FDA
FY 78; $5K   FY 79; $5K   FY 80; $5K

587. Radionuclides in Food Program

The purpose is to measure for possible radionuclide contamination in fish, poultry and red meats. This program also measures the possible contamination from nuclear power plants.

Sanford A. Miller; Bureau of Foods, FDA
FY 78; $5K   FY 79; $5K   FY 80; $ 5K

588. Pesticides and Metals in Fish Program

The purpose of this program is to sample and analyze imported and domestic fish to determine levels of pesticides, PCB's, mercury and other industrial contaminants. (Includes marine finfish, mollusks and crustacea.)

Sanford A. Miller; Bureau of Foods, FDA
FY 78; $560K   FY 79; $560K   FY 80; $560K

589. Study of the Public Health Significance of the Incidence and Possible Etiology of Neoplasms in Oysters, Mussels and other Shellfish

This research project will continue to investigate possible histopathologic relationships between shellfish and various environmental pollutants and attempt to detect known chemical mutagens in shellfish tissues. In addition attempts will be made to transmit procaryotic organisms to shellfish spat.

Aaron Rosenfield; Nat. Marine Fisheries Service
FY 78; $25K   FY 79; $15K   FY 80; †

DEPARTMENT OF THE INTERIOR

Funding Summary

(in thousands of dollars)

	FY 78	FY 79	FY 80
U.S. Geological Survey			
Conservation Division	$2,051	$ 5,431	$ 8,695
Geologic Division	$4,036	$ 3,930	$ 4,040
Water Resources	$10,020	$10,411	$10,380
	$16,107	$19,772	$23,115
Bureau of Land Management			
Generic Studies	$ 291	$ 1,100	$ 965
North Atlantic Studies	$ 3,476	$ 2,279	$11,850
Mid-Atlantic Studies	$ 3,987	$ 1,160	$ -
South Atlantic Studies	$ 2,581	$ 1,584	$ 4,231
Gulf of Mexico Studies	$ 5,315	$ 5,969	$ 7,256
Pacific Studies	$ 1,057	$ 2,278	$ 4,595
Alaska Studies	$20,949	$15,715	$22,288
BLM Totals	$37,656	$30,085	$51,185
Fish and Wildlife Service	$ 2,629	$ 2,700	$ 2,219
Department Totals	$56,392	$52,556	$76,519

U.S. Geological Survey (USGS)

Conservation Division

590. Fluidic Sensor for Hydrocarbon and Hydrogen Sulfide Gas

The development of technology for sensing H_2S and hydrocarbon gas on an offshore structure by means of a fluidic gas concentration sensor.

John B. Gregory; USGS, Conservation Division
FY 78; $123K FY 79; * FY 80; *

Conservation Division (continued)

591. Cavitation Water Jet Cleaning Nozzle

The harnessing of the destructive forces of cavitation erosion in a water jet nozzle for cleaning underwater structural joints.

John B. Gregory; USGS, Conservation Division
FY 78; 95K FY 79; * FY 80; *

592. Attenuating Surface Waves in a Localized Area of the Open Ocean

An experimental investigation of the refraction of surface waves from a localized area of the open ocean for purposes of launching and retrieving divers and submersibles as well as smoothing water where divers are working.

John B. Gregory; USGS, Conservation Division
FY 78; $85K FY 79; * FY 80; *

593. Dynamic Response of Offshore Structures

Determine structural response properties (such as natural frequencies, damping and modal shapes) from field data. Assess the importance of damping in the response of structures to wave excitation.

John B. Gregory; USGS, Conservation Division
FY 78; 75K FY 79; $81K FY 80;

594. Incipient Crack Detection in Offshore Structures

A nondestructive evaluation technique for detecting incipient cracking by means of monitoring the internal damping characteristics of a structure. The application is being applied to offshore structures as a means for locating joints which are fatiguing and for monitoring and predicting structural life without putting personnel into the water.

John B. Gregory; USGS, Conservation Division
FY 78; $88K FY 79; * FY 80;

595. Incipient Structural Failure by the Random Decrement Method

A method of nondestructive evaluation of a structure by periodic recording and filtering of its natural vibration response signature to obtain changes in structural damping.

John B. Gregory; USGS, Conservation Division
FY 78; 20K FY 79; $20K FY 80;

Conservation Division (continued)

596. Overpressured Marine Sediments

To explain the formation of overpressured marine sediments in order to predict their occurrence during drilling operations. TAMU contends that established theories are not correct and do not account for the total pressure. They are revising theories and performing experiments.

John B. Gregory; USGS, Conservation Division
FY 78; $15K FY 79; $65K FY 80;

597. Blowout Prevention for Deepwater Drilling

Develop improved well control procedures by obtaining insitu experimental data to evaluate mathematical analyses and rule of thumb assumptions used in controlling the flow of drill muds. The project will study the transient conditions of well kicks, start up, and shut down.

John B. Gregory; USGS, Conservation Division
FY 78; 91K FY 79; 80K FY 80;

598. Unmanned, Untethered Underwater Inspection Vehicle Technology

Develop and evaluate the technology for navigation, data sensing, storage, and telemetry for a free swimming robot submersible which would be programmed to inspect underwater pipelines and structures.

John B. Gregory; USGS, Conservation Division
FY 78; $159K FY 79; $100K FY 80;

599. Oilspill Trajectory Analysis

The U.S. Geological Survey has developed an oilspill risk analysis model to aid in estimating the environmental hazards of developing oil resources in Outer Continental Shelf (OCS) lease areas. This large, detailed, computerized model analyzes the probability of spill occurrence, likely paths of the spills, and locations of recreational and biological resources which may be vulnerable.

James R. Burns; USGS; Environmental Impact Analysis Program
FY 78; * FY 79; $285K FY 80;

600. High-Resolution Geophysical Program for Geological Hazards Analysis

The mission is to identify and evaluate geologic hazards on the OCS which could preclude leasing and exploration activities and to recommend tract withdrawals from a lease sale or application

Conservation Division (continued)

of lease stipulations to assure that any resource discovered can be exploited with acceptable risk.

Robert Schmidt; USGS, Geologic Division
FY 78; $1300K FY 79; $4800K FY 80;

Geologic Division

601. Sedimentolgy and Geochemistry of Gulf Coastal Zone

Determine distribution, ascertain spatial and temporal variations, and investigate controlling physio-chemical processes of trace element dispersal in the coastal marine environment.

Terry Edgar; USGS, Geologic Division
FY 78; $225K FY 79; $70K FY 80;

602. Dynamic of Currents and Sediment Transportation, Continental Shelves

Describe, understand and predict the characteristics of bottom-sediment movement and their relations to marine currents.

Terry Edgar; USGS, Geologic Division
FY 78; $29K FY 79; $85K FY 80;

603. Marine Geology of the San Francisco Bay

The marine geologic studies currently focus on the ecology and benthic biology of the bay relative to sediment distribution and transport, bay-water movement and man's activities.

Terry Edgar; USGS, Geologic Division
FY 78; $123K FY 79; $120K FY 80;

604. Continental Margin Sediment Dynamics

Determine dynamic processes involved in movement of sediment on and over the seafloor; assess effects of these processes on the geoenvironmental setting.

Terry Edgar; USGS, Geologic Division
FY 78; $104K FY 79; $80K FY 80;

Geologic Division (continued)

605. Environmental Geologic Studies, Atlantic and Gulf of Mexico Outer Continental Shelves

A grouping of projects devoted to the identification, study and mapping of geologic conditions and processes on the Atlantic and Gulf of Mexico Continental Shelves.

Terry Edgar; USGS, Geologic Division
FY 78; $1500K FY 79; $1500K FY 80;

606. Environmental Geological Studies, Pacific and Arctic Outer Continental Shelves

A grouping of projects devoted to the identification, study and mapping of geologic conditions.

Terry Edgar; USGS; Geologic Division
FY 78; $2000K FY 79; $2000K FY 80;

607. Trace Metal Geochemistry of Offshore Marine Sediments

Study vertical distribution of trace and heavy metals in marine sediments from estuaries and the continental shelf in U.S. Atlantic Continental Margin, and determine the rates of trace metal cycling and accumulation in sediments and the rates and depths of sediment mixing.

Terry Edgar; USGS, Geologic Division
FY 78; $55K FY 79; $75K FY 80;

Water Resources Division

608. Computer Models for Computation of Tidal River Discharge (CA324)

The objective is to evaluate the feasibility of applying a branching flow simulation model to a large part of the upper Sacremento River Delta. The are of study will include Georgiana, Steamboat, Sutter, Elk, Miner and Cache sloughs in addition to the Sacremento River from Sacremento to Rio Vista.

Arthur Ott; USGS, Water Res. Division
FY 78; $10K FY 79; $10K FY 80;

Water Resources Division (continued)

609. Hydrology of Estuarine Intertidal Environments (CR097)

To establish and to evaluate qualitatively and quantatively the sources of sediments in estuaries, with initial emphasis on the intraestuarine (intertidal and supratidal) source(s).

Arthur Ott; USGS, Water Res. Division
FY 78; $69K FY 79; * FY 80; *

610. Estuarine Hydrology of Tampa Bay (FL159)

The objective is to identify, through predictive modeling, dredging alternatives which are least disruptive and possibly beneficial to circulation and flushing of Tampa and Hillsborough Bays.

Arthur Ott; USGS, Water Res. Division
FY 78; $82K FY 79; $85K FY 80; *

611. Hydrology of Estuaries and Sounds of North Carolina, with Emphasis on Sea-Water Encroachment (NC04)

The objectives of this project are to consolidate, summarize, and interpret available data on the chemical and physical hydrology of estuaries and sounds of North Carolina into a single publication.

Arthur Ott; USGS, Water Res. Division
FY 78; $18K FY 79; * FY 80; *

612. Effect of Land Clearing and Drainage for Agricultural Development of Hydrology of Albermarle-Pamilco Peninsula, North Carolina (NC055)

To determine the extent to which the water balance and water quality of runoff from the area are changed by the land clearing and drainage activities.

Arthur Ott; USGS, Water Res. Division
FY 78; $100K FY 79; $30K FY 80;

613. Effects of Water Quality Changes on Estuarine Biota (NR012)

To furnish baseline information that will have transfer value to other estuaries.

Arthur Ott; USGS, Water Res. Division
FY 78; $57K FY 79; $64K FY 80;

Water Resources Division (continued)

614. Numerical Simulation of Hydrodynamic Processes in Rivers, Estuaries, and Embayments (NR019)

The broad objectives of this study are to thoroughly explore the hydrodynamics of one, two, and three-space dimensional transient flows in waterways and waterbodies including the transport and interaction of constituents, to develop the mathematical/numerical techniques to simulate these processes.

Arthur Ott; USGS, Water Res. Division
FY 78; $164K FY 79; $162K FY 80;

615. Hydrodynamic Study on the Transport (Convective Diffusion) of Thermal, Physical, and Chemical Constituents in Turbulent Surface Water (NR037)

To develop mathematical models for the transport of thermal and other constituents in surface water.

Arthur Ott; USGS, Water Res. Division
FY 78; $61K FY 79; $67K FY 80;

616. Hydrologic-Oceanographic Interrelations (NR042)

A technical objective is to investigate water circulation between the ocean, estuaries and bays and the underlying permeable strata and observe the various phenomena of ground-water discharge such as submarine springs.

Arthur Ott; USGS, Water Res. Division
FY 78; $41K FY 79; $51K FY 80;

617. Numerical Simulation of Hydrodynamic Phenomena by Digital Computer

To develop numerical methods, schemes, or appraches for solving selected hydrodynamic problems in the hydrologic system for which hitherto no tractable analytical solutions have been available or for analytical solutions which have extremely difficult computations to solve.

Arthur Ott; USGS, Water Res. Division
FY 78; $63K FY 79; $79K FY 80;

618. Water Quality Model Development and Implementation (NR074)

The goal is to provide the hydrologist or water-related-resources manager with an economically viable simulation model with which to evaluate the effects of past, present, and proposed changes in

Water Resources Division (continued)

a given prototype water body.

Arthur Ott; USGS, Water Res. Division
FY 78;* FY 79; $100K FY 80;

619. Potomac Estuary Studies (NR088)

Design, install, and operate a data collection network to provide time-series, boundary value data to implement, calibrate, and verify a 2-D flow simulation model.

Arthur Ott; USGS, Water Res. Division
FY 78; 526K FY 79; $681K FY 80;

620. Determination of Flow in the Hudson River Estuary (NR049)

A one-dimensional flow model will be used to determine quantity and direction of flow at any given time and for any given cross section in the reach of the Hudson River Estuary between Albany and Newburgh, N.Y.

Arthur Ott; USGS, Water Res. Division
FY 78; $12K FY 79; $17K FY 80;

621. Distribution of Elements in the Fluvial and Brackish Environments (WR044)

To determine the characteristic changes in major and minor element composition of water and stream sediment with time and discharge in selected clean and polluted streams and to relate these changes to sediment-water interaction and to the sources of the sediment and water.

Arthur Ott; USGS, Water Res. Division
FY 78; $158K FY 79; $323K FY 80;

622. Geochemistry of San Francisco Bay Waters and Sediments (WR046)

Define the dominant processes which influence water and sediment chemistry in the San Francisco Bay estuarine system and in selected cases evaluate the rates of these processes.

Arthur Ott; USGS, Water Res. Division
FY 78; $183K FY 79; $198K FY 80;

623. Polar Ice Remote Sensing (WR064)

Design polar remote sensing experiments using NASA and other

Water Resources Division (continued)

agency remote sensing aircraft and satellite experiments will be coordinated with necessary ground truth networks for the remote sensing systems.

Arthur Ott; USGS, Water Res. Division
FY 78; $180K FY 79; $198K FY 80;

624. Circulation Patterns and Sediment Transport in San Francisco Bay and Adjacent Ocean (WR060)

The objective is to acquire detailed knowledge of the pertinent natural factors and processes operating in any river-ocean mixing system to obtain a better understanding of present conditions; and anticipate results of proposed reduction in fresh-water inflow into the bay system.

Arthur Ott; USGS, Water Res. Division
FY 78; $230K FY 79; $268K FY 80;

625. Availablity of Trace Elements in Sediments to Macro-Invertabrates (WR125)

Determine influence of the geochemical characteristics of sediment on metal concentrations observed in detritus feeding invertebrates

Arthur Ott; USGS, Water Res. Division
FY 78; $102K FY 79; $89K FY 80;

626. Processes and Controls of Trace Element in Partitioning in Natural Waters (WR128)

Determine and interpret the processes controlling the distribution of trace metals between natural waters and their associated suspended and bed sediments and indigenous biota.

Arthur Ott; USGS, Water Res. Division
FY 78; $136K FY 79; $153K FY 80;

627. Hydrodynamic and Mathematical Modeling of Circulation and Transport Phenomena in a Tidal Estuary (WR140)

A mathematical hydrodynamic model of a tide-affected, developed through computer simulation, will be used to model and verify the transport phenomena which are active in the estuarine ecosystem of

Water Resources Division (continued)

San Francisco Bay.

Arthur Ott; USGS, Water Res. Division
FY 78; $220K FY 79; $230K FY 80;

628. Remote Sensing and Ecological Research in Wetlands (NR090)

To determine the spectral characteristic of wetland vegetation and relate these to interpretation of remotely-sensed data.

Arthur Ott; USGS, Water Res. Division
FY 78; $8.1K FY 79; $6K FY 80; †

629. National Stream Quality Network (NASQUAN)

Activities included here consist of research, areal studies, and hydrologic measurements in the coastal zone, conducted by the Water Resources Division of the Geological Survey. In 1977, there are 235 research projects representing 75% of the funding. the remaining 25% are for operating about 3,400 last downstream stations for measuring rivers flowing to the sea or to the Great Lakes as well as stations below these at which tidal, flood stages or water quality measurements are made.

Arthur Ott; USGS, Water Res. Div.
FY 78; $7600K FY 79; $7600K FY 80;

DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT (BLM)

Generic Studies

630. Biogeochemistry of Petroleum Components at the Sediment-Water Interface

Study the cycling of petroleum and biogenic hydrocarbons through surface sediments, bottom water and benthic organisms, and determine the impact of OCS activities on marine and coastal ecosystems and water quality. The information will enhance ability to predict impacts and develop mitigating measures in all OCS areas.

J. Farrington; Woods Hole Oceanographic Inst.
FY 78; $110K FY 79; $80K FY 80; †

631. Study of the Distribution and Fate of Biogenic and Petrogenic Hydrocarbons in Marine Sediments

Determine sources of carbon compounds to ocean sediments, fluxes of carbon, nitrogen, phosphorus and sulfur at sediment water interface, distribution of trace metals in sediments, fate of hydrocarbons in sediment column, and the impact of OCS activities on marine and coastal ecosystems and water quality. The information will enhance our ability to predict impacts and develop mitigating measures in all OCS areas.

I.R. Kaplan; University of California, Los Angeles
FY 78; $130.9K FY 79; $80K FY 80; †

632. Monte Carlo Modelling Techniques for Environmental Values and Impacts

Determine comparative resource values through the identification of the economic impacts on commercial fishing resulting from oil spills in the nearshore environments. This study will set economic values for environmental impacts. Such information is not presently available.

T. Warren; BLM, Wash., D.C.
FY 78; † FY 79; $90K FY 80; †

633. Develop Boom-Bust Model to Predict Energy Development Impacts

Develop an analytical model to forecast marine economic indicators in a community on a quarterly basis to determine bottle necks in local economy leading to inflation. Study will be focused on small town impacts in frontier areas such as North Atlantic OCS and Alaskan OCS.

T. Warren; BLM, Wash., D.C.
FY 78; † FY 79; $250K FY 79; †

Generic Studies (continued)

634. Biogeochemistry of Crude Oil Spill/Study of Behavior of Oil on the Sea

Improve oil spill weathering and trajectory models. Data will be collected via field work on spills of opportunity. Modelling of trajectory and mass balance of spilled oil based on field studies of a spill opportunity. This study will combine trajectory modelling with the changes in spilled oil over time.

J. Climato; BLM, Washington, D.C.
FY 78; † FY 79; $500K FY 80;

635. Discount Factor to Establish Present Value of Resources Vis A Vis Long- Run Price of Oil

To develop forcast of oil prices so net social value of sale can be computed. This information is needed to establish resource trade-offs. Little data now exists.

T. Warren; BLM, Washington, D.C.
FY 78; † FY 79; † FY 80;

636. Chemistry Quality Assurance

To establish reliability of results obtained under various laboratory studies. Activity will include intercalibrations, development of standard reference materials and testing of methodologies. This effort is an essential part of sound program management and must be contemporaneous with other chemistry element of studies.

J. Climato: BLM, Washington, D.C.
FY 78; † FY 79; $100K FY 80;

637. Program Quality Assurance

Assess overall state-of-the-art in methodologies employed: environmental impacts, oceanographic data collection, etc. This activity is necessary to ensure the collection of the most reliable information at the most reasonable cost.

J. Climato; BLM, Washington, D.C.
FY 78; † FY 79; † FY 80;

638. Application of a Coastal Circulation Model

To provide improved pollutant trajectories and enhanced impact assessment. The specific lease area in which the model will be

Generic Studies (continued)

applied has not yet been selected for this activity.

T. Ahlfeld; BLM, Washington, D.C.
FY 78; † FY 79; † FY 80;

639. Hydrocarbon Analysis in Marine Tissue

Objective: To develop and validate methodology for performing trace level (PPB) petroleum hydrocarbon analyses; to issue natural materials containing low-level petroleum hydrocarbons for laboratroy intercomparison studies.

Harry Hertz; National Bureau of Standards, Wash. D.C.
Funds transferred to NBS
FY 78; $50K FY 79; † FY 80; †

North Atlantic Studies

640. Physical Oceanography of Georges Bank

Permit a capability to predict the immediate, or short-term, dispersion fate of contaminant substances which might be introduced into the marine environment as a result of proposed offshore oil exploration and production; permit an understanding of the dynamics of the physically-driven nutrient cycle. Determine pollutant trajectory from prospective development sites; and evaluate possible biologic and social resource losses.

David Allen; BLM, Wash. D.C.
FY 78; $2,267K FY 79; † FY 80;

641. Summary and Interpretation of Historical Physical Oceanography and Meteorology Data, Georges Bank

Analysis of the historical data base in the national environmental data archives to identify water masses, the geographic positions of ocean fronts, and the surface circulation on the Georges Bank region of the Outer Continental Shelf. From this analysis, definitive features of hydrographic data profiles are selected which identify similar water masses.

David Allen; BLM, Wash. D.C.
FY 78; $210K FY 79; † FY 80; †

642. North Atlantic Shelf Sediment Mobility, Stability and Seston Flux Study

Investigate patterns of sediment mobility, such as sand wave migration and slumping along the shelf edge; and the movement of fine

North Atlantic Studies (continued)

grained sediments along the shelf and their potential as a transport agent for hydrocarbons. Field survey and laboratory analysis: to determine the types of geologic hazards and to develop measures to minimize possible impact.

David Allen, BLM, Wash. D.C.
FY 78; $999K FY 79; † FY 80;

643. Effects of Audio-Pollution & Physical Interference on Marine Cetaceans

Literature review and field survey and laboratory study to determine behavioral and physiologic responses of cetaceans to audio-pollution, the probability of audioimpact, and to develop mitigating actions.

James Cimato; BLM, Wash. D.C.
FY 78; † FY 79; $227K FY 80;

644. Effects of Oil on Marine Cetaceans

Literature review and field survey and laboratory study to determine the effect of oil on cetacean respiration and digestive systems, to identify those marine mammals and their habitats likely to be affected by OCS oil development activities.

James Cimato; BLM, Wash. D.C.
FY 78; † FY 79; $60K FY 80;

645. Effects of Oil and Petroleum Products on Commercially and Recreationally Important Species of Fin & Shellfish

Literature review field and laboratory effort: to synthesize all existing data on the lethal, sub-lethal, and indirect effects of drilling discharges and petroleum spills on marine fauna, to determine the acute and chronic effects of pollutants on critical life stages of selected species, by relating laboratory results to field situations and to determine mitigating actions.

David Allen; BLM, Wash. D.C.
FY 78; † FY 79; $535K FY 80;

646. Conflict of Space & Facility Utilization Between Fishing Industry and OCS Activities

Literature review and field survey: to establish a basis for assessing the social cost to the fishing industry of offshore oil development. Studies will relate fishing techniques and historical catch per unit effort to the area of development, assess the probable value of gear damage attributable to oil operations, suggest optimal

North Atlantic Studies (continued)

placement of structures to least interfere with fishing, and means of mitigating gear loss.

David Allen; BLM, Wash. D.C.
FY 78; † FY 79; $906.5K FY 80; †

647. Identification of Populations, Distribution, Migratory Patterns, and Breeding Sites of Nearshore Birds, and Possible Adverse Impacts From OCS Activities

Literature review and field survey: to determine the proportion of North American bird resource liable to possible adverse physical or biological disruption from oil development. Study results needed to comply with Migratory Bird Conservation Act provisions and the Endangered Species Act.

David Allen; BLM, Wash. D.C.
FY 78; † FY 79; † FY 80;

648. Effect of Oil and Petroleum Products on Birds

Literature review, field study, and laboratory analyses; to determine physiologic and toxicologic vulnerability of birds to oil pollution; to estimate the cost of development on bird resources; and to develop mitigating measures to minimize possible impact.

David Allen; BLM, Wash. D.C.
FY 78; † FY 79; † FY 80;

649. Impacts of OCS Development on Cultural and Archeologic Resources

Field verification of preceding literature survey; to ground-truth and evaluate identified cultural resources, and the advisability of applying provisions of the Archeological and Historical Preservation Act. Information is needed to preserve cultural resources from damage.

David Allen; BLM, Wash. D.C.
FY 78; † FY 79; † FY 80;

650. Environmental and Socio-Economic Impacts of Gas Processing Plant and Oil Storage Facilities Siting

Literature reviewed and synthesis: to determine the loss to the regional economy from air and water quality deterioration and socioeconomic impact on the community to be anticipated from on-land sitings. Results required to develop mitigating measures for

North Atlantic Studies (continued)

application during facility construction and operation.

David Allen; BLM, Wash. D.C.
FY 78; † FY 79; † FY 80;

651. Effects of Oil in the Inter-Tidal Zone

Literature review and laboratory modeling: to assess the effects of oil spills on differing regional coastal habitats and life stages of biota; to determine recovery rates for habitats and biota; to project possible economic losses associated with oil spills; and to determine the usefulness of cleanup and containment procedures and equipment for intertidal environmental conditions.

David Allen; BLM, Wash. D.C.
FY 78; † FY 79; † FY 80;

652. Oil Spills and Their Economic Impact on Recreation and Tourism

Literature review and data synthesis: to determine specific coastal sites utilized for recreation, their seasonal utilization, estimated profit and welfare losses in case of oil impact.

David Allen; BLM, Wash. D.C.
FY 78; † FY 79; $250K FY 80; †

653. Determination of Commercial and Recreational Fin and Shellfish Catch

Literature review and data synthesis: to identify major fishing grounds, catches, gear types used, & landings by season; identify foreign fish catch by area and gear type; determine seasonal patterns of catch; predict cost trends; and format data so the potential of individual lease blocks may be evaluated.

David Allen; BLM, Wash. D.C.
FY 78; † FY 79; $300K FY 80; †

654. Transport & Dispersion of Pollutants as They Affect Biologic & Onshore Economic Resources

Data analysis, interpretation, & modelling: to determine trajectory from prospective development sites; and to evaluate possible biologic and social resource losses. Information is required for environmental assessment as well as for Harris and other socio-

North Atlantic Studies (continued)

economic models.

David Allen; BLM, Wash. D.C.
FY 78; †　　FY 79; †　　FY 80;

655. Assessment of Geohazards and Their Effects on Operational Safety

Field survey & laboratory analyses: to determine the types of geologic hazard (slumping, substrate failure, migrating sand waves, shallow gas pockets, etc), and to develop mitigating stipulations to minimize possible impact. Information needed to insure proper location and engineering construction of platforms.

David Allen; BLM, Wash. D.C.
FY 78; †　　FY 79; †　　FY 80;

Mid-Atlantic Studies

656. Middle Atlantic OCS Environmental Assessment (Geological)

Measure rate of sediment mobility, determine the concentration, distribution and flux of suspended particulate matter, identify and map slump and other geological hazards, to survey shelf edge slump areas to determine the extent of activity and if recent; quantify sediment transport along shelf.

James Cimato; BLM, Wash. D.C.
FY 78; $849K　　FY 79; $1160K　　FY 80; †

657. Benthic Recolonization Study in the Middle Atlantic Region

Determine the rate at which an area, impacted by an oil spill, will recover from the incident. Protocol requires placement of oiled and control sediment boxes on strategic locations on the ridge and swale topography. Results are intended to characterize the sequence of benthic recolonization the length of time necessary to return to ambient conditions, and the chemical changes occurring in the oiled boxes over time.

James Cimato; BLM, Wash. D.C.
FY 78; $561K　　FY 79; †　　FY 80; †

658. Diseases Affecting Commercially Important Fish

Identify, through data analysis, the variety of diseases affecting

Mid-Atlantic Studies (continued)

commercial fin and shell fish.

James Cimato; BLM, Wash. D.C.
FY 78; $295K FY 79; † FY 80; †

659. Characterization of Marine Mammals in the Mid and North Atlantic Areas of the U.S. Outer Continental Shelf

Determine species, temporal and spatial distribution and behavioral characteristics of marine mammals and turtles in the region and identify and delineate their habitat, through field observation and literature review.

James Cimato; BLM, Wash. D.C.
FY 78; $1455 FY 79; † FY 80; †

660. Summary and Analysis of Cultural Resources Information of the Continental Shelf from the Bay of Fundy to Cape Hatteras

Review late Quaternary geology of the area, assess and identify those cultural resources located to date. Determine the probabilities of resource occurrance by area and/or feature, identify potential field study areas, and recommend modification of search and recovery techniques presently in use.

James Cimato; BLM, Wash. D.C.
FY 78; $215K FY 79; † FY 80; †

661. Canon Assessment Study in the Mid and North Atlantic Areas of the United States Outer Continental Shelf

Provide information on coral and epibenthic megafauna communities within the Oceanographer, Lydonia and Baltimore canyons of the Mid and North Atlantic OCS areas by determining the location of coral, the abundance and distribution of epibenthic fauna, especially megabenthic crustaceans.

David Allen; BLM, Wash. D.C.
FY 78; $612K FY 79; † FY 80; †

South Atlantic Studies

662. South Atlantic Outer Continental Shelf (OCS) Geologic Studies

Study consists of the characterization and distribution of six geologically important features and/or processes in the South Atlantic OCS region: 1) potentially mobile bedforms; 2) structures supportive of potentially sensitive biological communities; 3) bottom sediment mobility; 4) seston flux; 5) shelf edge and slope stability; and 6) distribution of trace metals in sediments.

Thomas Ahfeld; BLM, Wash. D.C.
FY 78; $985K FY 79; $454K FY 80;

663. South Atlantic Outer Continental Shelf (OCS) Satellite Oceanography

Provide satellite determined monthly information of the surface current, wave, and low-level wind fields for the South Atlantic OCS, and to generate an analytic model and computer program to describe the microscale characteristics of surface transport.

Thomas Ahlfeld; BLM, Wash. D.C.
FY 78; $142K FY 79; † FY 80;

664. South Atlantic Cultural Resources Evaluation

Review the late quaternary geology of the area, assess the total cultural resources that could be found, determine probablity of resource occurrence by area and/or feature, identify potential pilot study areas and recommend modification of search and recovery techniques.

Thomas Ahlfeld; BLM, Wash. D.C.
FY 78; $186K FY 79; † FY 80;

665. South Atlantic Outer Shelf (OCS) Physical Oceanography Study

Provide an understanding of the currents, circulation, and mixing processes in the Georgia Embayment/South Atlantic OCS region, including measurements of surface and subsurface currents, hydrographic sampling; Gulf Stream variability study and analysis of shelf forcing mechanisms, to provide necessary information for trajectory and circulation models and the Monte Carlo Simulation Model for the evaluation of oil and gas impacts.

Thomas Ahlfeld; BLM, Wash. D.C.
FY 78; $1000K FY 79; † FY 80;

South Atlantic Studies (continued)

666. South Atlantic Outer Continental Shelf (OCS) Meteorological Data Buoy Network

Provide for the acquisition of sensors and data transmitting equipment for two meteorological data buoys, provide data for the interpretation of physical oceanographic processes in the South Atlantic OCS and for input into circulation modeling efforts.

Thomas Ahlfeld; BLM, Wash. D.C.
FY 78; $71K FY 79; $117.4K FY 80;

667. South Atlantic Hard Bottoms Study

Survey four selected lease blocks with known hard bottom areas containing concentrations of benthic epifauna and demersak fishes, and assess the efficacy with which these areas can be identified and mapped utilizing common geophysical survey instruments and techniques. Color photographs, qualitative benthic samples and rock dredge samples will also be obtained.

Thomas Ahlfeld; BLM, Wash. D.C.
FY 78; $197K FY 79; † FY 80; †

668. Geological Hazards-Blake Plateau

To provide Common Depth Point (CDP) data necessary for resource evaluation and investigation of geologic hazards in the Blake Plateau area. This study is more extensive than normally carried out by the Conservation Division, Resource Evaluation Section of the U.S. Geological Survey prior to a lease sale in any given area. Information is needed for final tract selection, permitting of offshore structures and pipelines, and development of measures to mitigate pollutant impact.

Thomas Ahlfeld; BLM, Wash. D.C.
FY 78; † FY 79; † FY 80;

669. Polychaete Taxonomy

Establish a definitive classification key to the polychaetes of the Gulf of Mexico and South Atlantic, and provide continuity between study areas and standardization of identification of organisms. Existing information indicates that disagreement occurs among taxonomists regarding identification of polychaetes.

Thomas Ahlfeld; BLM, Wash. D.C.
FY 79; † FY 79; † FY 80;

South Atlantic Studies (continued)

670. Coastal Circulation Model

Apply coastal circulation model identified in FY 78 study to several OCS areas, including the South Atlantic, and provide improved pollutant trajectory and enhanced impact assessment. The model will then be refined and tested using the expanded data base provided by the physical oceanography field program and its ancillary studies. To describe surface and sub-surface circulation both qualitatively and quantitatively.

Thomas Ahlfeld; BLM, Wash. D.C.
FY 78; † FY 79; $311.2K FY 80;

671. Living Resources and Habitat Study

A field characterization designed to make possible the determinations of potential effects of OCS oil and gas activities on living marine resources, especially marine fisheries and their habitats in the South Atlantic OCS areas.

Thomas Ahlfeld; BLM, Wash. D.C.
FY 78; † FY 79; $701K FY 80;

Gulf of Mexico Studies

672. Topographic Features Study - Northern Gulf of Mexico

To conduct a systematic biological and geological reconnaissance of the area known as the Florida Middle Ground, and continuous monitoring (active and passive) of East and West Flower Garden reef bank for effects of development and examine new banks previously mapped, surveys of other topographic features via submersible for characterization and current studies in the Flower Garden area using attached meter strings.

Thomas Burke; BLM, Wash. D.C.
FY 78; $1986K FY 79; $767K FY 80;

673. Eastern Gulf of Mexico Marine Habitat Study

Identify critical marine habitat areas in OCS lease Sale No. 65, so that adequate environmental protection could be afforded. The study identified and delineated those bottom features which provided suitable substrata for the attachment of benthic epifauna and attracted a large number of demersal fishes and examined selected areas

South Atlantic Studies (continued)

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Apply coastal circulation model identified in FY 78 study to several OCS areas, including the South Atlantic, and provide improved pollutant trajectory and enhanced impact assessment. The model will then be refined and tested using the expanded data base provided by the physical oceanography field program and its ancillary studies. To describe surface and sub-surface circulation both qualitatively and quantitatively.

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James Lane; BLM, Wash. D.C.
FY 78; $354K FY 79; † FY 80; †

674. Mississippi Deltaic Plain Ecological Characterization

Develop and synthesize an environmental information base which permits an ecosystem-level understanding of the Plain. Will identify ecological features in nearshore and onshore zones and will stress the interrelationships and environmental alterations, induced by the offshore petroleum leasing and development, waterborne transportation, and commercial and recreational hunting and fishing.

James Lane; BLM, Wash. D.C.
FY 78; $377K FY 79; $680K FY 80;

675. South Texas Outer Continental Shelf Three Year Data Synthesis

Synthesize and integrate three continuous years of baseline biological and chemical data from the South Texas OCS, incorporate geological and fisheries information from USGS and NOAA into the description of the South Texas OCS and add other pertinent information and allow management decision making based on possible impacts to the ecosystem.

Thomas Burke; BLM, Wash. D.C.
FY 78; $504K FY 79; † FY 80; †

676. Onshore Endangered Species and Marine Mammals - Offshore Endangered Species

Provide information needed to determine whether onshore/offshore facilities and activities conducted at these facilities interfere with or disrupt the habits of life cycle or otherwise negatively impact onshore endangered species of the South Atlantic and Gulf of Mexico OCS areas. Determine whether the presence of offshore structure and related OCS supported activities interfere with or disrupt Gulf habitats or life cycle or negatively impact marine mammals and other onshore endangered species.

James Lane; BLM, Wash. D.C.
FY 78; $97K FY 79; $97K FY 80;

Gulf of Mexico Studies (co[illegible]nued)

677. Coastal Characterization and Ecological Mapping - Texas Barrier Islands

Identify ecological features in nearshore and onshore zones for transportation planning, facility siting, and pipeline permitting. Potentially sensitive areas can thus be avoided.

Thomas Burke; BLM, Wash. D.C.
FY 78; † FY 79; $680.7K FY 80;

678. Conflict of Space and Facility Utilization Between Fishing Industry and OCS Activities

Establish a basis for assessing the social cost to the fishing industry of offshore oil development. It will relate fishing techniques and historical catch per unit effort to the area of development, assess the probable value of gear damage attributable to oil operations, suggest optimal placement of structures to least interfere with fishing, and suggest means of mitigating their loss.

James Lane; BLM, Wash. D.C.
FY 78; † FY 79; $906.5K FY 80; †

679. Effects of Oil and Gas Activities on Reef Fish Populations in the Gulf of Mexico

Field and laboratory studies to determine amounts of noxious substances that may be injurious, and determine appropriate mitigation measures.

Thomas Burke; BLM, Wash. D.C.
FY 78; † FY 79; $340.3K FY 80;

680. Cultural Resources Evaluation

The primary purpose of a Phase II cultural resources evaluation is to define the high probablity cultural resource zones in the South Atlantic and Gulf of Mexico through a more detailed investigation and analysis of the cultural and environmental data available.

James Lane; BLM, Wash. D.C.
FY 78; † FY 79; † FY 80;

Gulf of Mexico Studies (continued)

681. Field Studies on the Effects of Drilling Fluids on Biologic Communities and Processes

To determine long-term effects of production activities by studying platforms of various ages. This information, as well as the literature survey, will be used to determine measureable impacts in the field, via lab and field studies. Results are needed to develop mitigating measures.

James Lane; BLM, Wash. D.C.
FY 78; † FY 79; $93.5K FY 80;

682. Sabine Area Cultural Resources Study

Area has been identified as having high likelihood of aborginal remains (submerged). Locations must be known for proper avoidance measures in facility siting. Study will be a field effort to determine actual locations of cultural resources and methods of performing rapid detailed surveys.

James Lane; BLM, Wash. D.C.
FY 78; † FY 79; $60.4K FY 80; †

683. Northern Gulf of Mexico Geological Investigations

Construct environmental atlases for NW Gulf of Mexico and Mississippi Delta front using sediment distribution, geochemistry, bioecology, areas of possible shallow gas, geohazards, data. Conduct geologic studies of the Plesitocene trend area, and studies of suspended sediment dynamics over large areas using satellite imagery.

Thomas Burke; BLM, Wash. D.C.
FY 78; $131K FY 79; $562K FY 80;

684. Comparative Benthic Studies - Eastern Gulf of Mexico

The intent of this field and laboratory study is to examine oil and gas related pollutant levels and the distribution of bottom organisms in lease areas that have been identified as pristine by the State of Florida.

James Lane; BLM, Wash. D.C.
FY 78; † FY 79; $300K FY 80; †

Gulf of Mexico Studies (continued)

685. Effects of Oil and Gas Activities on Marine Turtles and Shorebirds

Determine numbers and species (many endangered) east of delta near Chandelleur Island on a seasonal basis, and effects of activities, habitat alteration, lights and noise to determine appropriate mitigation.

James Lane; BLM, Wash. D.C.
FY 78; † FY 79; $400K FY 80; †

686. Northern Gulf of Mexico Fisheries Statistics Study

Comprehensive analysis of catch and yield data (15-year basis) on commercial fishing to determine relationship (if any) with extensive oil and gas activities. This relationship will form a basis for analyzing costs and benefits of different investments in mitigating measures.

James Lane; BLM, Wash. D.C.
FY 78; † FY 79; $200K FY 80;

687. Effects of Drilling Fluids - Literature Survey

A thorough review of existing information and subsequent analysis to determine the level of threat from these compounds and allow more appropriate mitigation.

James Lane; BLM, Wash. D.C.
FY 78; † FY 79; $100K FY 80; †

688. Recreational Use of Offshore Structures

This field study will determine degree of usage of structures by recreationists (primarily fishermen and divers) and factors influencing selection. A high social need may determine a policy of non-removal after play-out.

Thomas Burke; BLM, Wash. D.C.
FY 78; † FY 79; $300K FY 80; †

689. Eastern Gulf of Mexico Rig/Platform Monitoring

Examine effects of exploration and development drillng in shallow marine ecosystem of Florida that is heavily valued for sport and commercial fishing activities. Area considered pristine by Florida and all information gathered will aid in minimizing adverse impacts.

Gulf of Mexico Studies (continued)

James Lane; BLM, Wash. D.C.
FY 78; † FY 79; $50K FY 80; †

690. Northern Gulf of Mexico Literature Survey and Synthesis

Updating of environmental and socioeconomic data has not been performed since 1974. Information will be used in background for TRAMP, DP, and P/L ROW review.

Thomas Burke; BLM, Wash. D.C.
FY 78; † FY 79; $432K FY 80; †

691. South Texas OCS/Submarine Banks Monitoring Study

Field study to re-examine areas occupied during three-year benchmark study to identify changes from increased production activity. Will focus on production areas; needed to enhance long-term predictions of environmental impacts.

Thomas Burke; BLM, Wash. D.C.
FY 78; † FY 79; † FY 80;

692. Effects of OCS Oil and Gas Development on Wintering Waterfowl in the Northern Gulf of Mexico

Determine if acute and chronic oil spills, habitat destruction or alteration, food contamination, increased marine traffic and noise affect waterfowl populations in the areas that are required for winter migrations. Results are needed to develop measures to mitigate the identified impacts.

James Lane; BLM, Wash. D.C.
FY 78; † FY 79; † FY 80;

693. Ecological Investigations of Petroleum Production Platforms and Drilling Sites in the Central Gulf of Mexico

Measure the amount and quantity of degradative potential of resident bacterial persistence of certain well drilling related contaminants.

C.A. Bedinger; Southwest Research Institute, Houston, Texas
FY 78; $1,866K FY 79; † FY 80; †

Pacific Studies

694. Study of Erosion and Transport of Sediments and Pollutants on the San Pedro Shelf, Southern California

Investigate the water-borne transport of materials--pollutants, nutrients, and sediments--in the near bottom and bottom regimes on the continental shelf and slope adjacent to San Pedro Bay. The study is designed to provide: a better understanding of the mechanisms by which suspended pollutants--oil or trace metals --move near the sea floor, and the effect of significant erosion and deposition.

Fred Sieber; BLM, Wash. D.C.
FY 78; $224K FY 79; † FY 80; †

695. Faulting and Seafloor Instability in Selected Areas of the Southern California Continental Borderland

Assess the potential geologic hazards to oil and gas development along the mainland shelf from San Diego to Newport, the central Santa Rosa-Cortes Ridge, and the western Santa Barbara Channel area from tectonic activity; and unstable sea floor conditions resulting from slumps, slides and accumulations of unconsolidated sediment.

Fred Sieber; BLM, Wash. D.C.
FY 78; $122K FY 79; † FY 80; †

696. Review and Assessment of Air Quality Concerns Toward Sale 48

Review and assessment of air quality concerns toward S. California oil and gas sale no. 48.

Fred Sieber; BLM, Wash. D.C.
FY 78: $34K FY 79; † FY 80; †

697. Biological and Geological Reconnaissance and Characterization Survey of Tanner and Cortes Banks

This is a biological and geological reconnaissance and characterization survey of the Tanner and Cortes Banks in the Southern California Bight in areas within current and proposed oil and gas leases. Primary objective is to survey and map the distribution, composition, and relative abundance of the dominant benthic biological communities. Supportive objectives are bathymetric mapping and visually describing general topographic features.

Fred Sieber; BLM, Wash. D.C.
FY 78; $546K FY 79; † FY 80; †

Pacific Studies (continued)

698. Faulting, Seafloor Instability, and Patterns of Deposition off Northern California, between Cape Mendocino and Heceta Bank, North of Coos Bay, Oregon

Assess the potential geologic hazards to oil and gas development in the Eel River basin off Northern California and Coos Bay basin, Oregon, from: Tectonic activity and unstable sea floor conditions. Data samples will be analyzed to determine the regional distribution of potentially hazardous processes and to delineate specific hazards in the frontier of OCS Scale 53 area.

Fred Sieber; BLM, Wash. D.C.
FY 78; $131K FY 79; † FY 80; †

699. Marine Mammals and Seabirds Study of Northern California

Address the paucity of data for bird and mammal distribution and abundance at sea and summarize available data for coastal and island habitats for relevant species. Field survey of marine mammals and seabirds site and habitats usage regarding periods of usage, frequency and purpose of usage. This information will be used to determine sensitive areas and mitigating measures.

Fred Sieber; BLM, Wash. D.C.
FY 78; † FY 79; $778K FY 80;

700. Biological Reconnaissance and Characterization of Northern California

Determine the impacts on special biological areas and habitats including threatened and endangered species habitats by OCS oil and gas activities (Sale 53). The study will identify and describe the unique and special biological areas and habitats.

Fred Sieber; BLM, Wash. D.C.
FY 78; † FY 79; $728K FY 80; †

701. Northern California Air Quality Modeling Study

Modeling (reactive and inert) to predict impacts on regional air quality due to sale 53 development scenarios supplied by BLM.

Fred Sieber; BLM, Wash, D.C.
FY 78; † FY 79; $195K FY 80; †

Pacific Studies (continued)

702. Meteorology and Physical Oceanography of Northern and Southern California

Modeling (reactive and inert) to predict impacts on regional air quality due to sale 53 development scenarios supplied by BLM.

Fred Sieber; BLM, Wash., D.C.
FY 78; † FY 79; $195K FY 80; †

703. Geologic Hazards Assessment for Proposed Lease Areas of Sale 53

Identify geological constraints and potential hazards to OCS oil and gas activities (faults, slump areas, sand waves, structures), using geophysical and batyhmetric surveys. Information is needed for tract selection, determination of appropriate engineering, and structural design to mitigate geohazards.

Fred Sieber; BLM, Wash., D.C.
FY 78 † FY 79; $243.1K FY 80; †

704. Marine Mammal/Seabird Study of Northern California

Laboratory analysis to determine whether marine mammals and seabirds avoid oil on water or are attracted to oil on water. This effort includes a search of existing literature and past observations. Results are needed for the design of measures to mitigate the impacts of OCS oil and gas activities.

Fred Sieber; BLM, Wash., D.C.
FY 78; † FY 79; † FY 80;

705. Oil Spill Model Evaluation in Southern California

Evaluate trajectory models and develop a model to predict trajectories for specific areas of small scale utilizing data from meteorological and physical oceanography study. Must consider fate of oil during spill as well. This will improve existing model efforts and utilize FY 79 study information.

Fred Sieber; BLM, Wash., D.C.
FY 78; † FY 79; † FY 80;

Pacific Studies (continued)

706. Rig Monitoring Assessment of Damage Caused by Anchor Placement

A field survey to assess the actual real extent of damage by the anchor chains as the drillship is moved into position. Emphasis will be placed on coral reefs on offshore banks. Results of this study will be applied to the design of measures to reduce identified impacts. (Study applied to Sale 53.)

Fred Sieber; BLM, Wash. D.C.
FY 78; † FY 79; † FY 80;

707. Oil Toxicity Study on Indigenous Fish and Shellfish of Northern California

Laboratory studies to determine the toxicity of oil on selected species of finfish and shellfish larvae. Will also detail the vulnerable periods of fishes' development. Results are needed for the design of measures to mitigate the impacts of oil and gas activities.

Fred Sieber; BLM, Wash. D.C.
FY 78; † FY 79; † FY 80;

708. Marine Mammal and Seabird Use of Areas Studies (Critical Areas)

This effort will be a field delineation of nesting, roosting, feeding and migration utilization of sensitive or critical areas (Farallon Islands and Ano Nuevo, examples) by marine mammals and seabirds in Northern California. Results are needed for tract selection and development of mitigating measures for an oil spill or physical disturbance.

Fred Sieber; BLM, Wash. D.C.
FY 78; † FY 79; † FY 80;

709. San Pedro Shelf Sediment Study

This is a field study and will utilize previous studies in San Pedro Bay to determine the pathways and rates of sediment movement on the San Pedro Shelf. The information is used for hazard evaluations during developmental plan and pipeline approvals.

Fred Sieber; BLM, Wash. D.C.
FY 78; † FY 79; † FY 80;

710. Delineation of Commercial and Sport Fisheries Nursery Areas

Effort will consist of a review of existing literature and field

Pacific Studies (continued)

survey or "ground truthing" to identify nursery sites for commercial species in Northern California. Data is needed to assess impacts of OCS oil and gas activities on these sensitive areas. Existing data needs to be brought together, analyzed, and checked for accuracy.

Fred Sieber; BLM, Wash. D.C.
FY 78; † FY 79; † FY 80;

711. Transportation Management Plan - Landfall Assessment

An analysis of risks between alternative pipeline routes, tanker routes, and other OCS uses. Includes: Potential pipeline landfall identification; risk assessment of transportation modes; multiple-use conflicts of OCS development in Southern California.

Fred Sieber; BLM, Wash. D.C.
FY 78; † FY 79; † FY 80;

712. Geohazards Study of Selected Areas of Northern California

A field survey to locate and assess activity of sub-surface faults, areas of slumping and unstable bottoms, and gas-charged reservoirs. Will fill in gaps missed in previous surveys. Results are needed for tract selection determination of appropriate engineering, and structural design to mitigate geohazards.

Fred Sieber; BLM, Wash. D.C.
FY 78; † FY 79; † FY 80;

713. Analysis of Public Commments and Concerns of Air Quality Issues in Northern California

Study will analyze public comments, scenarios, and results of air quality modeling study (FY 79) to assess and address air quality concerns.

Fred Sieber; BLM, Wash. D.C.
FY 78; † FY 79; † FY 80;

Alaska Studies
(All BLM/Alaska funds transferred to DOC/NOAA)

714. Identification, Documentation and Delineation of Coastal Bird Habitat in Alaska

Purposes are to determine seasonal changes in the composition, distribution, abundance, feeding and breeding ecology of birds associ-

Alaska Programs (continued)

ated with coastal habitats.

P. Arneson; Alaska Dept. of Fish and Game
FY 78; $72.8K FY 79; $51.5K FY 80; †

715. Food Web Relationships and Productivity of Invertebrate Species in the Nearshore Zone

Exploration of the benthos on the Alaskan OCS to provide broad-scale information on the composition, distribution and relative abundance of the epifaunal invertebrates. Similarly the infauna have been studied primarily through use of grab and dredge surveys except in Norton Sound where only the epifauna has been intensively investigated by trawling equipment.

H.M. Feder; Univ. of Alaska
FY 78; $395K FY 79; $162.2K FY 80;

716. Distribution, Abundance, Composition, and Variability of the Western Beaufort Sea Benthos

Provide synthesized information on abundance, size, densities, spatial distributions of selected key benthic organisms, with special emphasis on those species found in vertebrate consumers' diets.

A.G. Carey; Oregon State Univ.
FY 78; $96.3K FY 79; $107K FY 80;

717. A Seismotectonic Analysis of the Seismic and Volcanic Hazards in the Pribilof Islands--Eastern Aleutian Islands Region of the Bering Sea

To record the locations and magnitudes of all detectable earthquakes within the study area and develop frequency of occurrence versus magnitude relationships and to determine the seismic activity of surface and nearsurface faults identified by geologic mapping.

J.N. Davies; Columbia Univ.
FY 78; $93.3K FY 79; $30K FY 80;

718. Finfish Surveys in Norton Sound and Kotzebue

The goals are to describe species composition in selected areas, to determine trophic relationships for major fish species, to describe spawning areas and seasons, and to determine population

Alaska Studies (continued)

movement and seasonal growth.

P. Jackson; Alaska Dept. of Fish and Game
FY 78; $71.5K FY 79; † FY 80; †

719. Assessment of Potential Interactions of Microorganisms and Pollutants from Petroleum Development in Lower Cook Inlet and the Beaufort Sea

The goals of the OCSEAP microbiology program are to determine the effects of oil on the numbers and types of bacteria present in each lease area and their contribution to the productivity of the area, through carbon and nitrogen fixation and denitrification.

R. Atlas; Univ. of Louisville
FY 78; $158.8K FY 79; $156.2K FY 80;

720. Current-Mapping Radar Measurements

The objective of this study is to produce synoptic maps depicting the spatial/temporal variability of tidal and non-tidal currents in selected regions of the Lower Cook Inlet lease area.

D.E. Barrick; NOAA/ERL Wave Propagation Laboratory
FY 78; $156.3K FY 79; $50K FY 80; †

721. Coastal Morphology, Sedimentation and Oil Spill Vulnerability of Montague Island and the Kenai Peninsula

Objectives are to compile field data on shoreline morphology, beach sediment grain size characteristics, vegetation, sedimentation rates, wave heights, and longshore currents as input to oil spill vulnerablity classification and to produce maps summarizing these parameters and the relative oil spill vulnerability of the coastal zone.

M.O. Hayes; Univ. of South Carolina
FY 78; $68.8K FY 79; $40.4K FY 80;

722. Abundance and Seasonal Distribution of Marine Mammals in the Gulf of Alaska

The objective of this unit is to provide siting data on marine mammals from the Gulf of Alaska and Southern Bering Sea, including seasonal distribution, relative abundance, population size

Alaska Studies (continued)

and composition.

H. Weiss; Naval Undersea Center
FY 78; $36.7K FY 79; † FY 80; †

723. Baseline Characterization of Marine Mammals in the Bering Sea

The objective is to summarize existing data for marine mammals on seasonal or population distributions, abundance, migration patterns, critical habitats, and breeding locations.

C. Fiscus; NOAA/NMFS/NWAFC
FY 78; $36.9K FY 79; † FY 80; †

724. Abundance and Seasonal Distribution of Bowhead and Beluka Whales in the Bering Sea

The goal is to determine migratory patterns, seasonal distribution and relative abundance of Bowhead and Beluka whales in the Bering - Chukchi - Beaufort Sea stocks.

C. Fiscus; NOAA/NMFS/NWAFC
FY 78; $34.4K FY 79; † FY 80; †

725. Effects of Oiling on Survival Potential and Feeding Behavior of Sea Otters

The effects of petroleum fouling on the thermoregulation, metabolism, and diving and feeding behavior in fur seals. This effort was studied and was extended subsequently to include sea otters.

G.L. Kooyman; Scripps Inst. of Oceanography
FY 78; $65K FY 79; $52.7K FY 80; †

726. Lethal and Sublethal Effects on Selected Alaskan Marine Species After Acute and Longterm Exposure to Oil and Oil Components

Objectives are to determine the acute toxicity and selected sublethal effects of North Slope crude oil on "key" arctic fish and crustaceans for purposes of comparison with existing data on subarctic organisms.

J.F. Karinen; NOAA/NMFS/NWAFC
FY 78; $310K FY 79; $135K FY 80;

Alaska Studies (continued)

727. Sublethal Effects of Petroleum Hydrocarbons and Trace Metals Including Biotransformations, as Reflected by Morphological, Chemical, Physiological, Pathological, and Behavioral Indices

Objectives are the sublethal effects of petroleum-impacted sediments on flat fish and crustaceans, petroleum-induced lens abnormalities in salmon, and the effects of petroleum on development of salmon and flatfish eggs and larvae.

D.C. Malins; NOAA/NMFS/NWAFC
FY 78; $400K FY 79; $268K FY 80;

728. Ecosystem Dynamics, Eastern Bering Sea

The purpose of this research is to investigate the nature, size, complexity and feasibility of a multi-component, dynamic, numerical ecosystem model for the eastern Bering Sea and to construct a functional model permitting useful and reliable assessments of fluctuations in the eastern Bering Sea biomass.

T. Laevastu; NOAA/NMFS/NWAFC
FY 78; $50.1K FY 79; $30K FY 80; †

729. Littoral Studies: Gulf of Alaska and Bering Sea

Goals are to determine the distribution of the major habitats along the coastline and to determine the densities and distribution of biotic populations within these habitat types.

S. Zimmerman; NOAA/NMFS/Auke Bay
FY 78; $75K FY 79; † FY 80; †

730. Ecology and Vulnerability of Pribilof Island Seabirds

Objectives of this study are primarily synthesis efforts to define the reproductive ecology, phenology and trophic relationships of selected marine bird species occupying major rookeries in the Pribilof Islands.

G.L. Hunt; Univ. of California at Irvine
FY 78; $103.4K FY 79; $95.6K FY 80; †

731. The Interaction of Oil With Sea Ice

The objectives of this research project are to determine ice properties and potential oil-ice interactions.

S. Martin; Univ. of Washington
FY 78; $50.1K FY 79; $33.8K FY 80; †

732. Dynamics of Nearshore Sea Ice

This project studies the deformation and movement of shorefast ice, including ice pile-ups, the large-scale movement of pack ice through Bering Strait, the characterization of the pack ice along the Beaufort Sea coast by means of aerial remote sensing, and the strength properties of sea ice, by examining preferred crystal orientation.

W.F. Weeks; U.S. Army Cold Regions Research and Engineering Laboratory
FY 78; $173.4K FY 79; $64.7K FY 80;

733. Current Measurements in Possible Dispersal Regions of the Beaufort Sea

The objective of this work has been to determine dispersal mechanisms for pollutants.

K. Aagaard; Univ. of Washington
FY 78; $99.6K FY 79; $60.3K FY 80;

734. Effects of Petroleum Exposure on Hatching Success and Chick Survival of Alaskan Glaucous-Winged Gulls (Larus glaucescens) on Egg Island, Copper River Delta

Efforts will identify critical habitats, major migration routes, large gull breeding localities and seasonal changes in density and distribution, evaluate the impact of petroleum on chicks.

S. Patten; Johns Hopkins Univ.
FY 78; $30.2K FY 79; $3.2K FY; 80 †

735. Dynamics of Near-shore Sea Ice

The purpose is to study ice dynamics on the Beaufort and Chukchi Seas by determining the ice motion and behavior from satellite-tracked buoys deployed on and drifting with the ice.

R. Colony; AIDJER
FY 78; $56.8K FY 79; † FY 80; †

Alaska Studies (continued)

736. Delineation and Engineering Characteristics of Permafrost Beneath the Beaufort Sea

The objective is to analyze shallow seismic data made available by the petroleum industry and other commercial sources, based on earlier exploration efforts.

P. Sellman; U.S. Army Cold Regions Research and Engineering Lab.
FY 78; $114.3K FY 79; $65K FY 80;

737. Gulf of Alaska Study of Mesoscale Oceanographic Processes

The objectives are to complete analysis of data and to provide a map of circulation patterns to allow calculation of oil spill trajectories with calculated probabilities of impact over selected areas.

S.P. Hayes; NOAA/ERL/PMEL
FY 78; $449.6K FY 79; $292K FY 80;

738. Simulation Modeling of Marine Bird Population Energetics Food Consumption and Sensitivity to Perturbation

Evaluaton of spatial variations in energy and food consumption for marine birds.

John A. Wiens; Oregon State Univ.
FY 78; $75K FY 79; $50K FY 80; †

739. Offshore Permafrost Studies, Beaufort Sea

The objectives are to determine the lithology, degree of ice bonding and ice content of cores obtained in the Beaufort Sea from other RU's and projects and on the basis of geochronological analysis of material from these boreholes, determine the history of the sea level during the last 30,000 - 50,000 years.

David Hopkins; U.S. Geological Survey, Alaskan Geology Branch
FY 78; $46.7K FY 79; $42.1K FY 80;

740. Distribution, Abundance, and Feeding Ecology of Birds Associated with Sea Ice

Interpretive understanding of the broad dependencies of arctic marine birds on sea ice habitats in pre-breeding and post-breeding periods.

George Divoky; Pt. Reyes Bird Observatory, Stinson Beach, Ca.

FY 78; $66.3K	FY 79; $50K	FY 80;

741. Morbidity and Mortality of Marine Mammals

Aerial reconnaissance to locate stranded, dead and moribund animals and necropsy of selected individuals and to use these data to provide information on annual variation in disease occurrence of stranded and beached carcasses.

Francis H. Fay; Univ. of Alaska

FY 78; $114K	FY 79; $50.2K	FY 80;

742. Microbial Activity and Crude Oil Microbial Interactions in Waters and Sediments of Cook Inlet and the Beaufort Sea

The goals are to determine the numbers and types of bacteria present in each lease area and the potential effects of contaminants or their contribution to the productivity of the area, through carbon and nitrogen fixation and denitrification.

R. Griffiths; Oregon State Univ.

FY 78; $162.5K	FY 79; $116.1K	FY 80;

743. Shorebird Dependence on Arctic Littoral Habitats

The objective is to determine seasonal occurrence of shorebirds by species and age classes in arctic littoral and nearshore habitats, with special emphasis on altered habitats, and coastal structures.

Peter G. Connors; Univ. of California

FY 78; $65.7K	FY 79; $49.8K	FY 80;

744. Site Specific Studies of Heavy Metals

The objective is to study localized transport and reactions of a selected combination of heavy metals in restricted areas within four of the designated lease areas.

D. Burrell; Univ. of Alaska

FY 78; $ 172K	FY 79; †	FY 80; †

Alaska Studies (continued)

745. Natural Distribution and Dynamics of Light Hydrocarbons in Water and Sediments

Site-specific surveys to provide a data base to understand the nature and processes occurring near and around the submarine seeps in the Norton Sound.

Joel Cline; NOAA/ERL/PMEL
FY 78; $105.8K FY 79; $128K FY 80;

746. Suspended Sediments in Alaskan OCS Areas

The objective is to investigate the distribution and dynamics of suspended particulate material (SPM).

R. Feely; NOAA/ERL/PMEL
FY 78; $142.4K FY 79; $111.4K FY 80;

747. Bristol Bay/St. George Oceanographic Processes

The objectives of this study are to provide information leading to an improved understanding of the hydrography, circulation patterns, and dominant driving mechanisms in the southeastern Bering Sea.

L.K. Coachman; Univ. of Washington
FY 78; $94.9K FY 79; $40K FY 80; †
J.D. Schumacher; NOAA/ERL/PMEL
FY 78; $156K FY 79; $60K FY 80; †

748. Numerical Studies of the Alaskan Region

The objective is to develop a diagnostic circulation model to calculate currents over an area from density data and data from strategically located current meters for the purpose of determining trajectories. These trajectories include the effect of stochastic processes derived from the statistics of the empirically determined currents.

J. Galt; NOAA/ERL/PMEL
FY 78; $150K FY 79; $100K FY 80;

749. Circulation and Water Masses in the Gulf of Alaska and Satellite Imagery of Mesoscale Flow Features in Other Alaskan OCS Areas

The objective is to study the mean and seasonal variations of the water mass characteristics and currents in the Gulf of

Alaska Studies (continued)

Alaska and to use this data to attempt to estimate and map the surface circulation in the entire Gulf of Alaska.

T. Royer; Univ. of Alaska, Inst. of Marine Science
FY 78; $255.4K FY 79; $102K FY 80; †

750. Petroleum Contaminants; Distribution and Dynamics in the Alaskan OCS Areas with Emphasis on Water and Biota Matrices

Objectives are to assess the temporal variability of heavy aliphatic and aromatic hydrocarbons dissolved in the water column, and to investigate the uptake of heavy hydrocarbons (aliphatic and aromatic) by zooplankton from the water column.

D. Shaw; Univ. of Alaska
FY 78; $228.8K FY 79; $40K FY 80;

751. Arctic Offshore Permafrost Studies

Objectives are to develop proper interpretation and calibrating techniques to identify subsea permafrost and permafrost beneath barrier islands by seismic methods and detect the presence and extent of ice-bonded permafrost in the vicinity of boreholes and fill in these data between boreholes.

J.C. Rogers; Univ. of Alaska, Engineering Dept.
FY 78; $40K FY 79; $40K FY 80;

752. Operation of an Alaskan Facility for Applications of Remote Sensing Data to OCS Studies

Objectives are to make remote sensing data processing facilities and interpretation techniques available to the OCS investigators so that these techniques can be incorporated in their investigations.

A. Belon; Univ. of Alaska, Geophysical Inst.
FY 78; $151.3K FY 79; $110K FY 80; †

753. In Situ Measurements of the Mechanical Properties of Sea Ice

This project is studying the strength properties of sea ice through novel in situ measurements and is comparing them with available laboratory results.

L. Shapiro; Univ. of Alaska, Geophysical Inst.
FY 78; $106.5K FY 79; $102.1K FY 80;

Alaska Studies (continued)

754. Morphology of Beaufort, Chukchi and Bering Sea Nearshore Ice Conditions by Means of Satellite and Aerial Remote Sensing

Satellite and aerial remote sensing is used to study the seasonal variation of nearshore ice conditions in Beaufort , Chukchi and Bering Seas.

W. Stringer; Univ. of Alaska, Geophysical Inst.
FY 78; $57.9K FY 79; † FY 80; †

755. Subsea Permafrost: Probing, Thermal Regime and Data Analysis

Objectives are to develop the capibility to predict the presence or absence of subsea permafrost, its thickness and thermal, mechanical and chemical states, also massive ice bodies and the presence of gas hydrates in the lease area.

T. Osterkamp; Univ. of Alaska, Geophysical Inst.
FY 78; $83K FY 79; $60K FY 80;

756. Seismic and Volcanic Risk Studies -- Western Gulf of Alaska

The objectives are to operate a regional network of short-period seismic stations and to provide seismicity data with greatly improved accuracy and lower magnitude level.

H. Pulpan; Univ. of Alaska
FY 78; $166.8K FY 79; $187.7K FY 80;

757. Mechanics of Origin of Pressure Ridges, Shear Ridges and Hummock Fields in Landfast Ice

This project has examined the mechanisms by which ice can be deformed into ridges and hummocks in the shorefast ice close to the beach.

L. Shapiro; Univ. of Alaska, Geophysical Inst.
FY 78; $27.6K FY 79; $25.2K FY 80;

758. The Relationships of Marine Mammal Distributions; Densities, and Activities to Sea Ice Conditions

The goal is to determine the distribution and densities of ice-dominated marine mammal habitats in the Bering, Chukchi and Beaufort

Seas and the environmental factors producing changes affecting the mammals.

L. Shapiro; Univ. of Alaska
FY 78; $68.6K FY 79; † FY 80; †

759. Population Assessment, Ecology and Trophic Relationships of Steller Sea Lions in the Gulf of Alaska

This project has produced a catalog and map of all hauling-out areas for sea lions in the general Gulf of Alaska region including information on numbers seen at each site.

D. Calkins; Alaska Department of Fish and Game
FY 78; $155.1K FY 79; $145K FY 80;

760. Ecology of Seabirds in the Bering Straits Region

The project systematically investigates colonial concentrations, migratory and trophic dynamics, productivity, and other processes and also addresses the feeding distribution patterns and prey selection by birds occupying key colonies previously investigated.

W. Drury; College of the Atlantic
FY 78; $91.7K FY 79; $33.5K FY 80;

761. Trophic Relationships Among Ice-Inhabiting Phocid Seals and Functionally Related Marine Mammals

This project is part of the integrated trophics studies in the Beaufort Sea, and also undertakes the determining and interpreting of prey dependencies among four species of seals in the Bering and the Chukchi and Beaufort Seas.

L.F. Lowry; Alaska Department of Fish and Game
FY 78; $112.2K FY 79; $122K FY 80;

762. The Natural History and Ecology of the Bearded Seal Erignathus Barbatus and the Ringed Seal Phoca (Pusa) Hispida

The multi-year study focuses on the biology and population dynamics of the two species of ice-inhabiting seals of greatest importance to coastal inhabitants of arctic Alaska.

T.J. Eley; Alaska Department of Fish and Game
FY 78; $125.4K FY 79; $90K FY 80; †

Alaska Studies (continued)

763. Biology of the Harbor Seal in the Gulf of Alaska

Development of radio-tracking techniques for monitoring population status and FY 79 efforts will be directed toward the final synthesis and analysis of the preceding years' field data and the preparation of a comprehensive final report on the studies.

K. Pitcher; Alaska Department of Fish and Game
FY 78; $80K FY 79; $50K FY 80; †

764. Lagrangian Surface Current Observations for OCSEAP - Alaska

Objectives are to obtain Larangian surface current data in order to describe the important features of surface circulation so that critical impact areas may be identified.

D. Hansen; NOAA/ERL/AOML
FY 78; $89.8K FY 79; † FY 80; †

765. Erosion, Deposition, Faulting, and Instability of Shelf Sediments: Northeast Gulf of Alaska

The objective is to compile, analyze, and synthesize the data previously collected and seafloor hazards.

B.F. Molnia; U.S. Geological Survey, Marine Geology, Menlo Park, Ca.
FY 78; $50K FY 79; $100K FY 80;

766. Earthquake Activity and Ground Shaking in and Along the Eastern Gulf of Alaska

The objective is to monitor earthquake activity in the northeastern Gulf of Alaska and to provide data on ground motions associated with major earthquakes.

J.C. Lahr; U.S. Geological Survey, Office of Earthquake Hazards
FY 78; $207K FY 79; $200K FY 80;

767. Yukon Delta Coastal Processes Study

Objectives is to analyze complex surface processes which pose potential hazards and environmental impact problems to onshore development and to use this data to define the general nature of onshore processing and transportation facilities.

W.R. Dupre; Univ. of Houston
FY 78; $13.5K FY 79; $8K FY 80; †

Alaska Studies (continued)

768. Faulting and Slope Instability on the Outer Continental Shelf and Margin of the Southern Bering Sea

Goals are to determine the presence and distribution of surface and subsurface faults and areas of slumps and potential slumps.

T. Vallier; USGS, Marine Geology, Menlo Park, Ca.
FY 78; $50K FY 79; † FY 80; †

769. Geologic Environments of the Ice-Covered Beaufort Sea Shelf and Coastal Regions

This project is studying processes which are unique to the arctic shelf environment. Using sediment profiling, core sampling, diving, underwater TV and photography, thermoprobes, oceanographic sensors and remote sensing the effect of ice on sediments bathymetry, heat transfer and river discharge and sediment transport with emphasis on ice gouging.

P. Barnes; USGS; Pacific-Arctic Branch of Marine Geology
FY 78; $80.8K FY 79; $80K FY 80;

770. Synthesis

Synthesis of OCSEAP data and information.

R. Engleman; NOAA/ERL/OCSEAP, Bolder, Co.
FY 78; $1122.5K FY 79; $603.2K FY 80;

771. Logistics

Logistical support for the OCSEA Program.

R. Engleman; NOAA/ERL/OCSEAP, Bolder Co.
FY 78; $3,450K FY 79; $3,250K FY 80;

772. Management

Management support for the OCSEA Program.

R. Engleman; NOAA/ERL/OCSEAP, Bolder Co.
FY 78; $3600K FY 79; $3100K FY 80;

773. Analysis of Nearshore Marine and Anadromous Fishes in the Chukchi Sea (Field Program, Literature Search and Synthesis)

Objectives are to compile annotated bibliography and statement of status of knowledge of nearshore fish resources in the Chukchi; to

Alaska Studies (continued)

initiate field work on migrating and nearshore fish dynamics, seasonal movements and trophic relationships; and to plan and execute stream surveys.

R. Engleman; NOAA/ERL/OCSEAP, Bolder, Co.
FY 78; † FY 79; † FY 80;

774. Physical Oceanographic and Meteorology of the Beaufort Sea

The purpose is to analyze stature of physical and meteorological processes in the New Beaufort Sea lease area, when it is identified to summarize these processes and identify data gaps and design a field program to fill them.

R. Engelmann; NOAA/ERL/OCSEAP, Boulder, CO.
FY 78; † FY 79; † FY 80;

775. ARCO Causeway - Investigations of Restorative Measures for Modifying the ARCO Causeway Continuous-Fill Causeway

This proposes to evaluate the ability of breaches to restore sediment-rich and nutrient-rich water to Gwydyr Bay, to evaluate fish passage through the breach and analyze information on various effects due to the causeway.

R. Engelmann; NOAA/ERL/OCSEAP, Boulder, CO.
FY 78; † FY 79; † FY 80;

776. Determination of Sea Ice Characteristics by Using Airborne Side-looking Radar (Field Study)

Objective is to collect side-looking airborne radar (SLAR) imagery in a period of fast ice-formation between November and late January.

R. Engelmann; NOAA/ERL/OCSEAP, Boulder, CO.
FY 78; † FY 79; † FY 80;

777. Initial Survey of Sea Ice Hazards in Norton Sound (Field Study)

The purpose of initial survey by aerial reconnaissance and ground-based observations is to observe recurring ice features, movement of pack ice and buoy trajectories and to estimate possible extent of subsea permafrost.

R. Engelmann; NOAA/ERL/OCSEAP, Boulder, CO.
FY 78; † FY 79; † FY 80;

Alaska Studies (continued)

778. Deep Drill Holes for Geotechnical Studies Related to the Stability of Large Sediment Masses

R. Engelmann; NOAA/ERL/OCSEAP, Boulder, CO.
FY 78; † FY 79; † FY 80;

779. Tsunami Hazards in Cook Inlet and Adjacent Areas

Objective is to describe vulnerability of certain sites to tsunami damage.

R. Engelmann; NOAA/ERL/OCSEAP, Boulder, CO.
FY 78; † FY 79; † FY 80;

780. Coastal Oceanography

A field study to describe the total nearshore current regime in coastal regions near Yakutat Bay.

R. Engelmann; NOAA/ERL/OCSEAP, Boulder, CO.
FY 78; † FY 79; † FY 80;

781. Oceanographic Studies in Shelikof Strait and Lower Cook Inlet

Objective is to provide direct measurement of surface currents under known wind and water conditions.

R. Engelmann; NOAA/ERL/OCSEAP, Boulder, CO.
FY 78; † FY 79; † FY 80;

782. Meteorologic Studies, Lower Cook Inlet

A field study to provide wind fields for oil spill trajectory analysis.

R. Engelmann; NOAA/ERL/OCSEAP, Boulder Co.
FY 78; † FY 79; † FY 80;

783. Oil Rig Monitoring

A laboratory study and literature review to show suceptibility of larvae to hydrocarbons in the Lower Cook Inlet environment.

R. Engelmann; NOAA/ERL/OCSEAP, Boulder, CO.
FY 78; † FY 79; † FY 80;

Alaska Studies (continued)

784. Characterization of Regional Ecosystems on the Kodiak Shelf

A study to describe characteristic habitats and ecosystems.

R. Engelmann; NOAA/ERL/OCSEAP, Boulder, CO.
FY 78; † FY 79; † FY 80;

785. Seasonal Population Density Distribution of Copepods on the Kodiak Shelf

A field study to address taxonomic composition and seasonal abundance of pelagic copepods, to describe numerical abundance of selected species, which are important food sources, and to provide input to synthesis of data on trophic relationships and structures.

R. Engelmann; NOAA/ERL/OCSEAP, Boulder, CO.
FY 78; † FY 79; † FY 80;

786. Taxonomic Composition, Seasonal Distribution and Abundance of Decapod Larvae and Other Meroplankton on the Kodiak Shelf

Provides analysis and synthesis of available data of certain forms of sport species, correlaion of observed larval distributions with regional oceanographic features and of potential resource use conflicts in Kodiak area.

R. Engelmann; NOAA/ERL/OCSEAP, Boulder, CO.
FY 78; † FY 79; † FY 80;

787. Seafloor Geologic Hazards in Bristol Bay, Alaska

A field study to determine faulting and other seafloor instabilities.

R. Engelmann; NOAA/ERL/OCSEAP, Boulder, CO.
FY 78; † FY 79; † FY 80;

788. Sediment Geothechnical Studies on the Alaskan Continental Shelf

This project will examine the effect of natural loading processes (storm waves, tidal fluctuations, tsunamis, and seismic activity) which might trigger sediment failure.

R. Engleman; NOAA/ERL/OCSEAP, Bolder Co.
FY 78; † FY 79; † FY 80;

Alaska Studies (continued)

789. Ground Accelerations Associated with Major Earthquakes in Alaskan OCS Areas

Objectives are to expand coverage of the existing network of strong-motion accelerometers and to utilize available data and appropriate techniques for extrapolating measured accelerations to offshore areas.

R. Engelmann; NOAA/ERL/OCSEAP, Bolder, Co.
FY 78; † FY 79; † FY 80;

790. Portable Array of Ocean Bottom Seismometers

The objectives of this effort will be to assemble portable arrays of OBS units which can be deployed on demand where it is necessary to acquire better data on offshore seismicity and activity of selected faults.

R. Engelmann; NOAA/ERL/OCSEAP, Bolder, Co.
FY 78; † FY 79; † FY 80;

791. Habitat Requirements and Expected Distribution of Alaskan Coral

This study will gather preliminary data to be used for formulating a predictive model for occurrence of coral on the Alaskan OCS.

R. Engelmann; NOAA/ERL/OCSEAP, Boulder, CO.
FY 78; † FY 79; † FY 80;

792. Synthesis of Available Information on Environmental Impacts Due to Oil and Gas Development Operations

In depth summary of the existing knowledge of the environmental impacts resulting from the operational activities of OCS oil and gas development.

R. Engelmann; NOAA/ERL/OCSEAP, Boulder, CO.
FY 78; † FY 79; † FY 80;

793. Assessment of the Effects of Aircraft Disturbance on Seabird Nesting Colonies

The objective is the assessment of the effects of aircraft disturbances on seabird nesting colonies.

R. Engelmann; NOAA/ERL/OCSEAP, Boulder, CO.
FY 78; † FY 79; † FY 80;

Alaska Studies (continued)

794. Bird and Mammal Species Accounts of Total Annual Cycle Exposure To Offshore Petroleum Risks in Context with Other Global Risks

In general the purpose of this study is to provide regulatory authorities with relative risk information on major Alaskan species of marine birds and mammals at risk from offshore petroleum activities.

R. Engelmann; NOAA/ERL/OCSEAP, Boulder, CO.
FY 78; † FY 79; † FY 80;

795. Ice-Edge Currents

A field study to verify that the circulation model accounts for the effect of the ice-edge on currents.

R. Engelmann; NOAA/ERL/OCSEAP, Boulder, CO.
FY 78; † FY 79; † FY 80;

796. Effects of Hydrocarbons on Contained Ecosystems

The objective is to investigate the biological effects of petroleum contamination.

R. Engelmann; NOAA/ERL/OCSEAP, Boulder, CO.
FY 78; † FY 79; † FY 80;

797. Nearshore Surface Currents

The objective is to provide a direct measurement of surface currents under known wind and water conditions.

R. Engelmann; NOAA/ERL/OCSEAP, Boulder, CO.
FY 78; † FY 79; † FY 80;

798. Meroplankton, Juvenile Fish and Forage Fish: Relative Abundance and Distribution in Nearshore Waters

The objectives are to determine the relative abundance and distribution in nearshore waters of meroplankton, juvenile fish and forage fish.

R. Engelmann; NOAA/ERL/OCSEAP, Boulder, CO.
FY 78; † FY 79; † FY 80;

Alaska Studies (continued)

799. Characterization of Light Hydrocarbons in Surface Sediments and Sediment Cores

Measurements of light hydrocarbons in sediments and sediment cores to determine the geographical extent of the active seep, downcore hydrocarbon gradients and hydrocarbon flux, correlation between gas probe measurements, whole sediment measurements, and fractionation and modification of seep hydrocarbons and they are introduced to the sediment surface.

K. Kvenvolden; USGS, Marine Geology Division, Menlo Park, Ca.
FY 78; † FY 79; † FY 80;

800. Weathering of Spilled Oil Under Arctic Environmental Conditions

This is a combined literature review and laboratory study to determine rate of oil weathering under extreme cold conditions.

R. Engelmann; NOAA/ERL/OCSEAP, Boulder, CO.
FY 78; † FY 79; † FY 80;

801. Seafloor Geologic Hazards in the St. George Basin Area of the Southern Bering Sea, Alaska

A field study to map sediment and seafloor instabilities.

R. Engelmann; NOAA/ERL/OCSEAP, Boulder, CO.
FY 78; † FY 79; † FY 80;

802. Bottom and Near Bottom Sediment Dynamics on the Kodiak Shelf

A field study to determine rates and processes of sediment transport.

R. Engelmann; NOAA/ERL/OCSEAP, Boulder, CO.
FY 78; † FY 79; † FY 80;

803. Nearshore Meteorology in the Bering Sea

A field study to provide wind field data for calculations of oil spill trajectories.

R. Engelmann; NOAA/ERL/OCSEAP, Boulder, CO.
FY 78; † FY 79; † FY 80;

Alaska Studies (continued)

804. Effects on Arctic Marine Food Species of Acute and Chronic Exposure to Petroleum Hydrocarbons

A laboratory study to determine effects of exposure to hydrocarbons on arctic organisms.

R. Engelmann; NOAA/ERL/OCSEAP, Boulder, Co.
FY 78; † FY 79; † FY 80;

805. Midwinter Hydrologic Characterization of Selected Arctic River Deltas Supporting Overwintering Fish Populations

This project will assess feasibility of midwinter arctic hydrologic studies in support of fisheries habitat protection in specified river deltas subject to offshore development effects.

R. Engelmann; NOAA/ERL/OCSEAP, Boulder, Co.
FY 78; † FY 79; † FY 80;

806. An Oil Spill Trajectory Model in Lower Cook Inlet

A laboratory study to calculate oil spill trajectories using field data.

R. Engelmann; NOAA/ERL/OCSEAP, Boulder, Co.
FY 78; † FY 79; † FY 80;

807. Effect of Oil on Coastal Plant Communities of the Yukon Delta

The objective is to test the effect of oil pollution on coastal lowland sedge communities and to measure their recovery rate.

R. Engelmann; NOAA/ERL/OCSEAP, Bolder, Co.
FY 78; † FY 79; † FY 80;

808. Oil Weathering Experiments

A field and laboratory study to determine the processes and co-efficients which descibe the weathering of oil.

R. Engelmann; NOAA/ERL/OCSEAP, Bolder, Co.
FY 78; † FY 79; † FY 80;

809. The Transport and Behavior of Oil Spilled in and Under Sea Ice

The objective is to determine, by laboratory experiments, the physical processes by which spilled oil gets incorporated in, and transported in and under, sea ice.

Lawrence Shultz; ARCTEC, Inc.
FY 78; $145.7K FY 79; $179.3K FY 80;

810. The Transport and Behavior of Oil Spilled in and Under Sea Ice

The general objective of this study is to determine the locations to which oil spilled in or under the ice cover near Prudhoe Bay would be transported and, further, to determine the behavior of the oil as the ice moves and deforms.

Max Coon; Flow Research Company
FY 78; $38.8K FY 79; $61.2K FY 80;

811. Archival of Voucher Specimens of Biological Materials Collected Under the OCSEAP Support

W. Eschmeyer; California Academy of Sciences
FY 78; $33.9K FY 79; $34.8K FY 80; †

812. Oil Pooling Under Sea Ice

Objective is to provide a description and characterization of the fate of spilled oil on the underside of the sea ice which is moving over the continental shelf.

Austin Kovacs; U.S. Army Cold Regions Research and Engineering Lab.
FY 78; $26K FY 79; $30.5K FY 80;

813. Analysis, Storage, and Dispersement of Marine Coastal Sediment Reference Samples

The goal is to receive and analyze prehomogenized marine coastal sediment samples to be used as a reference and intercalibration material for heavy hydrcarbon analysis.

W. Macleod; NOAA/NMFS/NWAFC
FY 78; $20.1K FY 79; $50K FY 80;

814. Trace Metals in the Bottom Sediments of the Southern Bering Sea

Sediment samples from the 1977 Sea Sounder cruise in the vicinity of St. George Island will be processed on board ship, then submitted to USGS analytical labs.

Dean, W. Jr.; USGS, Denver, Co.
FY 78; $15K FY 79; † FY 80; †

Alaska Studies (continued)

815. OCSEAP/Alaskan BLM Spilled Oil Research (SOR) Team

Objectives are to test hypotheses on the behavioral and biological effects of petroleum under real environnmental conditions and to study the chemical fate and weathering of spilled oil.

Lt. John Kineman; NOAA/ERL/OCSEAP
FY 78; $150K FY 79; $50K FY 80;

816. Seasonal Characteristics of Meroplankton and Food Web Structure in the Nearshore Waters of Kodiak Island

The overall objective of Integrated Biological Studies in Kodiak is to describe, analyze and verify the ecological community structure and productivity of selected coastal ecosystems with respect to potential impacts of oil and gas development.

D. Rogers; Fisheries Research Inst., Univ. of Washington
FY 78; $305.5K FY 79; $325.2K FY 80; †

817. Seasonal Distribution and Population Characteristics of Nearshore Fishes

The overall objective is to describe, analyze and verify the ecological community structure and productivity of selected coastal ecosystems with respect to potential impacts of oil and gas development.

P. Jackson; Alaska Department of Fish and Game
FY 78; $215.9K FY 79; $155K FY 80; †

818. Description of Plankton Populations of the Banks Off Kodiak Island

The overall objective is to describe, analyze, and verify the ecological community structure and productivity of selected coastal ecosystems with respect to potential impacts of oil and gas development.

J. Dunn; NOAA/NMFS/NWAFC
FY 78; $235.6K FY 79; $190K FY 80; †

819. Oil Spill Trajectory Analysis

As described in title.

R. Schlueter; Dames and Moore
FY 78; $27.9K FY 79; $18.6K FY 80; †

DEPARTMENT OF THE INTERIOR (BLM)

Alaska Studies (continued)

820. Ecology of the Nearshore Fishes in the Northeast Gulf of Alaska

A field study to describe shallow water fish communities in the Northeast Gulf of Alaska; habitat evaluation, spatial and temporal distribution, relative abundance and trophic relationships.

R. Rosenthal; Alaskan Coastal Research, Homer, Alaska
FY 78; $12.6K FY 79; $75.4K FY 80;

821. Norton--Chukchi Oceanographic Processes

The primary objective is to complete the analyses of data acquired to date in order to define the dominant circulation features, including spatial and temporal variability, with the offshore and nearshore regions of the lease areas.

L.K, Coachman; Univ. of Washington
FY 78; $113.7K FY 79; FY 80; †
J.D. Schumacher; PMEL
FY 78; $123.3K FY 79; $90K FY 80; †

822. Nutrient Dynamics in Nearshore Under-Ice Waters, and Determination of Relative Fractions of Carbon From Different Sources Active in the Simpson Lagoon Trophic System

This project has a set of specific objectives that are designed to serve the ecologic process studies and trophics groups, by analyzing the dynamics of nutrient and carbon flows in the nearshore system.

D.M. Shell; Univ. of Alaska; Inst. of Water Resources
FY 78; $66.4K FY 79; $87.2K FY 80;

823. Development and Operation of a Remote Sensing Data Acquisition Platform for OCS Studies

The objective of meeting needs of OCSEAP scientists for remote sensing involves establishing, operating and maintaining aircraft remote sensing data collection platform capabilities.

G. Laursen; Univ. of Alaska, National Arctic Research Lab.
FY 78; $73.7K FY 79; † FY 80; †

Alaska Studies (continued)

824. Oceanographic Processes in a Beaufort Sea Barrier Island Lagoon System: Numerical Modeling and Current Measurements

The objectives are to study the hydrography and circulation of Simpson Lagoon so as to aid in the understanding and prediction of physical, chemical, biological and geomorphological conditions in similar barrier island lagoons along the arctic coast of Alaska.

J.C.H. Mungall; Kinetics Laboratories, Inc. Santa Cruz, California
FY 78; $65.4K FY 79; $69.9K FY 80; †

825. The Environmental Geology and Geomorphology of the Barrier Island - Lagoon System Along the Beaufort Sea Coastal Plain From Prudhoe Bay to the Colville River

The objectives are to determine the geological and geomorphological environment of the barrier island-lagoon system of, specifically, Simpson Lagoon and, generally, the entire coast of the lease area.

P.J. Cannon; Univ. of Alaska
FY 78; $30.1K FY 79; $36.6K FY 80; †

826. Sediment Characteristics, Stability, and Origin of the Barrier Island - Lagoon Complex, North Arctic Alaska

This project looks at the geological and sedimentological setting of the Simpson Lagoon in the context of the whole coastal geology of the Beaufort Sea.

A.S. Naidu; Univ. of Alaska Institute of Marine Science
FY 78; $69.9K FY 79; $64.4K FY 80;

827. Formal Conversion and Analysis of Baseline Study Data from the Gulf of Ak

Data management in support of baseline studies.

H. Peterson; Univ. of Rhode Island
FY 78; $61.6K FY 79; $120K FY 80; †

828. Characterization of the Nearshore Hydrodynamics of an Arctic Barrier Island - Lagoon System

The objective is to complete the analysis of collected data and synthesis of all available data of the Simpson Lagoon System.

B. Matthews; Univ. of Alaska, Geophysical Inst.
FY 78; $151.9K FY 79; $201.9K FY 80;

Alaska Studies (continued)

829. Characterization of the Nearshore Hydrodynamics of an Arctic Barrier Lagoon System; Meteorolgical Input

This program is providing a service function by supplying information on the mesoscale wind field in the nearshore area.

E. Leavitt; Univ. of Washington, Div. of Marine Resources
FY 78; $51.9K FY 79; $59.9K FY 80; †

830. A Geographic-Based Information Management System for Permafrost in the Beaufort and Chukchi Seas

Objectives are to develop a computerized prediction system for distribution and characteristics of offshore permafrost and to continue a comprehensive review and analysis of pertinent Soviet literature.

M. Vigdorchick; Univ. of Alaska
FY 78; $42.8K FY 79; $80K FY 80; †

831. Seasonal Composition and Food Web Relationships of Pelagic and Demersal Fishes in Lower Cook Inlet

The objectives have been to determine the seasonal composition and feeding habits of principal life stages of nearshore fishes and to evaluate the timing and use of specific nearshore areas by critical life stages.

J. Blackburn; Alaska Department of Fish and Game
FY 78; $155K FY 79; $100K FY 80; †

832. Major, Minor, and Trace Element Analysis of Selected Bering Sea Sediment Samples by Instrumental Neutron Activation Analysis

Objective is to determine environmental concentrations and distribution of trace metals and hydrocarbons in the Cook Inlet study areas and the presence or absence of perturbations due to oil and gas development.

D. Robertson; Battelle, Pacific Northwest Laboratories
FY 78; $37.8K FY 79; † FY 80; †

833. Activity-Directed Fractionation of Petroleum Samples

Objectives are to isolate and characterize potentially hazardous fractions in crude oil or weathered crude oil not currently being

Alaska Studies (continued)

studied in the Alaska program.

J. Warner; Battelle, Pacific Northwest Laboratories
FY 78; $96.2K FY 79; † FY 80; †

834. Modeling Algorithms for the Weathering of Oil in the Marine Environment

Objectives are to provide tested algorithms for oil spill trajectory modeling to identify specific areas of possible improvement in validity of modeling algorithms, and to work with 2 and 3 dimensional modelers in field and laboratory research.

J. Mattson; Univ. of Alaska, Arctic Environmental Inf. and Data Center
FY 78; $29K FY 79; † FY 80; †

835. Data Processing and Pre-Processing Assistance for the OCSEAP Principal Investigators

Defined in title.

M. Crane; NOAA/OAS/NODC
FY 78; $55K FY 79; $15K FY 80; †

836. Evaluation of Earthquake Activity Around Norton and Kotzebue Sounds

The objective is to develop an overall view of the nature and potential dangers from earthquakes in the area.

N.N. Biswas; Univ. of Alaska
FY 78; $82.3K FY 79; $144.4K FY 80;

837. A Survey of Cetaceans of Prince William Sound and Adjacent Vicinity - Their Numbers and Seasonal Movements

Purpose of study is to determine seasonal distribution and abundance of prinicpal cetacean species in Prince William Sound and adjacent Gulf of Alaska, major foraging areas for these species and food habitats of the Dall porpoise.

J. Hall; U.S. Fish and Wildlife Service
FY 78; $31.8K FY 79; † FY 80; †

Alaska Studies (continued)

838. Distribution and Dynamics of Petroleum Components in Sediments of the Alaska OCS Areas

This program addresses the potential sedimentary impact of petroleum released during exploration and production activities.

I. Kaplan; Univ. of California at Los Angeles
FY 78; $101.7K FY 79; $96.2K FY 80;

839. Shoreline History and Processes

Objectives are to understand the history and processes of the arctic shorelines and offshore barrier islands.

D.M. Hopkins; USGS; Alaskan Mineral Resources Branch
FY 78; $30K FY 79; $48.2K FY 80;

840. Beaufort Sea Barrier Island - Lagoon Ecological Process Studies

Objectives are to determine the various impacts of OCS development on a typical barrier island-lagoon system on the Beaufort Sea coast and study selected processes and biota within this system which are particularly vulnerable to impact.

J.C. Truett; Environmental Research Associates
FY 78; $620.5K FY 79; $394K FY 80;

841. Analysis of Numeric Monitoring Techniques on Populations at Large Seabird Colonies

Objectives are to test the validity of using a small subplot approach to estimate total colony numbers and then field test the indicated approach and statistical treatments.

D. Roseneau; Renewable Resources Inc.
FY 78; $12K FY 79; $40.2K FY 80;

842. Accumulation of Organic Constituents From Petroleum-Impacted Sediments by Marine Detritivores

Objectives are to study the bioaccumulation of sediment-associated petroleum under different environmental conditions and to examine bioaccumulation of petroleum as a function of sediment type.

J.W. Anderson; Battelle Pacific Northwest Laboratories
FY 78; $129.7K FY 79; $110K FY 80; †

Alaska Studies (continued)

843. A Dynamic Circulation Model of the Bering Sea

The objective is an overall modeling effort to describe tidal and wind driven circulation in the entire eastern Bering Sea.

J. Leendertse; Rand Corporation
FY 78; $98.1K FY 79; $158K FY 80;

844. Coastal Processes and Morphology of the Eastern Bering Sea

The goal is to monitor beach profiles including longshore sediment transport, coastal erosion and wave characteristics in order to eradicate the effects of future storms.

Sallenger; USGS, Menlo Park, Ca.
FY 78; $15K FY 79; † FY 80; †

845. Bottom and Near-Bottom Sediment Dynamics in Lower Cook Inlet

This study addresses the overall objectives of evaluating geologic hazards associated with erosion and deposition on the seafloor and of characterizing bottom sediment dynamics.

D.A. Cacchione; USGS, Menlo Park, Ca.
FY 78; $164.6 FY 79; $20K FY 80;

846. Faulting, Sediment Instability, Erosion, and Deposition Hazards of the Norton Basin Sea Floor

The overall objective of this study is to identify and describe potential seafloor hazards which may affect oil platforms, drilling operations, and pipelines in Norton Sound.

C.H. Nelson; USGS, Pacific-Arctic Branch of Marine Geology
FY 78; $100K FY 79; † FY 80;

847. Bering Sea Ice Edge Ecosystem Study: Nutrient Cycling and Organic Matter Transport

V. Alexander; Univ. of Alaska
FY 78; $180.5K FY 79; † FY 80; †

848. Composition and Sources Identification of Organic Detritus in Lower Cook Inlet

Objectives are to define the seasonal composition and origin of organic detrital material, to determine the short- and long-term vertical fluxes of organic particles to the bottom and to determine

Alaska Studies (continued)

the importance of this detrital component to the benthic community.

J.D. Larrance; Pacific Marine Environmental Laboratory
FY 78; $127.8K FY 79; $50K FY 80; †

849. Seasonal Composition and the Relationship of Planktonic Fauna (Holoplankton and Meroplankton) to the Food Web of Selected Communities in Lower Cook Inlet

The objective is to determine the time of appearance and quantitive distribution of meroplankton with emphasis on ichthyoplankton, fish eggs, and the planktonic larval stages of shrimp and crabs.

T. S. English; Univ. of Washington
FY 78; $156.3K FY 79; $103K FY 80; †

850. Effects of Oil on the Reproduction in Wild Birds and the Influence of Petroleum on Egg Formation and Embryonic Development in Seabirds

Objective is to examine the effects of Prudhoe Bay crude and Bunker C fuel oil on developmental embrology and hatching success in seabirds.

C. Grau; Point Reyes Bird Observatory, Stinson Beach, Ca.
FY 78; $33K FY 79; † FY 80; †

851. Ecological Studies of Intertidal and Shallow Subtidal Habitats in Lower Cook Inlet and Negoa

Objectives are directed toward seasonal and shorter-term estimations of production, standing crop, and growth for major macrophyte species, trophic relationships of dominant organisms, and growth and standing crop for selected invertebrate species.

D. Lees; Dames and Moore
FY 78; $131.3K FY 79; $120K FY 80; †

852. Transport, Retention, and Effects of Toxic Petroleum Hydrocarbons in Experimental Food Chains

The goal is to determine the physiological, histological, and morphological effects at certain chronic and acute concentrations of petroleum components on marine biota.

J. Whipple; NOAA/NMFS/SWFC-Tiburon
FY 78; $83.5K FY 79; † FY 80; †

Alaska Studies (continued)

853. Nearshore Meteorology

The objectives of this study are to provide an improved understanding of mesoscale features of the surface wind field resulting from coastal orographic effects.

R. M. Reynolds; NOAA/ERL
FY 78; $135K FY 79; $117.3K FY 80; †

854. Bibliographic Support to OCSEAP

The goal is to provide bibliographic literature searches to OCSEAP principal investigators who request them.

J. Stear; NOAA, Environmental Science Information Center
FY 78; $6K FY 79; † FY 80; †

855. Alaskan OCS Data Base Management

Management of OCSEAP data.

E. Law; NOAA, National Oceanographic Data Center
FY 78; $450K FY 79; $425K FY 80; †

856. Beaufort Sea Plankton Studies

Objectives are the summarization of existing data, literature and archived samples and to study zooplankton and phytoplankton from the ice in winter.

R.A. Horner; Consultant, Seattle, WA
FY 78; $46.7K FY 79; $50K FY 80;

857. Environmental Assessment of Selected Habitats in the Beaufort Sea Littoral System

Objectives are to document and report on structure of biotic communities at study sites in the arctic littoral system and to synthesize information on reproductive activities and potentials of principal littoral species; assess relative roles of immigration and reproduction.

A. C. Broad; Western Washington State College
FY 78; $129.7K FY 79; $230.5K FY 80;

Alaska Studies (continued)

858. Population Dynamics and Trophic Relationships of Marine Birds in the Gulf of Alaska

The objectives are population dynamics of marine birds, seabird colony mapping and trophics studies.

C.J. Lensink; U.S. Fish and Wildlife Service
FY 78; $385K FY 79; $337K FY 80;

859. Seasonal Distribution and Abundance of Marine Birds

Objectives are to determine seasonal density distributions of marine birds in pelagic habitats of the western Gulf of Alaska, eastern Bering Sea and Chukchi Sea and to determine temporal and spatial changes in primary foraging areas in the vicinity of selected major seabird rookeries.

C.J. Lensink; U.S. Fish and Wildlife Service
FY 78; $100K FY 79; $50.3K FY 80; †

860. Determine the Frequency and Pathology of Marine Fish Diseases in the Bering Sea, Gulf of Alaska, and Beaufort Sea

Objectives are to use baseline data on marine mammals health prior to OCS development to aid in assessment of future effects; knowledge of microbial pathogens affects demersal animals are used on future pathological conditions.

B. McCain; NOAA/NMFS/NWAFC, Seattle, Wa.
FY 78; $47.3K FY 79; † FY 80; †

861. Shallow Faulting, Bottom Instability, and Movement of Sediments in Lower Cook Inlet and Western Gulf of Alaska

This study addresses the overall objective of evaluating geologic hazards associated with seafloor instability, erosion and deposition in the Lower Cook Inlet and Kodiak lease areas.

M.A. Hampton; USGS, Menlo Park, Ca.
FY 78; $120K FY 79; $132K FY 80;

862. Grain Size Analysis of Sediment from Alaska Continental Shelves

Objective is to provide data for analysis of grain size sediments from various parts of the Alaskan OCS.

A. Naidu; Univ. of Alaska
FY 78; $17K FY 79; † FY 80; †

DEPARTMENT OF THE INTERIOR (BLM)

Alaska Studies (continued)

863. Coastal Oceanography

A field study to describe the total nearshore current regime in coastal regions near Yakutat Bay.

R. Engelmann; NOAA/ERL/OCSEAP, Boulder, Co.
FY 78; † FY 79; † FY 80;

864. Migratory and Seabird Usage of NEGOA Estuaries: Yakutat Bay to Cape Fairweather

A field study to determine key or endangered species, temporal and spatial density distribution patterns and collect evidence regarding migration, use of habitats and sites for foraging, nesting, and shelter.

R. Engelmann; NOAA/ERL/OCSEAP, Boulder Co.
FY 78; † FY 79; † FY 80;

865. Endangered Whale Species in the Gulf of Alaska and Bering Sea

Objectives are to obtain data on endangered whale species.

R. Engelmann; NOAA/ERL/OCSEAP, Boulder Co.
FY 78; † FY 79; † FY 80;

866. Under Ice Trajectories

Objective is to obtain verification of the accuracy of current calculations from model of under ice cover conditions.

R. Engelmann; NOAA/ERL/OCSEAP, Boulder Co.
FY [illegible]8; † FY 79; † FY 80;

867. Critical Habitat Identification

This includes identification and mapping of critical habitats for foraging, migration, and resting.

R. Engelmann; NOAA/ERL/OCSEAP, Boulder, Co.
FY 78; † FY 79; † FY 80;

868. Air Quality Studies

Objectives include a study of nature and magnitude of air pollutants relative to primary standards.

R. Engelmann; NOAA/ERL/OCSEAP, Boulder, Co.
FY 78; † FY 79; † FY 80;

DEPARTMENT OF THE INTERIOR

U.S. FISH AND WILDLIFE SERVICE (FWS)

869. Ecology and Limnology: Effects of Water Use Practices on Great Lakes Fishes

Conduct field studies and evaluate as fish-spawning and rearing habitat the nearshore waters of the Great Lakes and connecting waterways. Assess vulnerability of fish to entrainment, entrapment, and exposure to other stresses induced by waste disposal operations on the Great Lakes and connecting waterways. Determine effects of dredging, spoil disposal, and other forms of lakebed and shoreside modification on the quality and capacity of nearshore habitat as spawning and nursery areas for Great Lakes fishes.

Al Sherk ; DOI, F&WS
FY 78; $149.2K FY 79; $147K FY 80;

870. Ecology and Limnology: Benthos as Indicators of Habitat Quality

Objectives are to map the distribution and measure the abundance of benthic invertebrates and submergent (rooted) aquatic plants in nearshore areas of the Great Lakes and their connecting waters and determine the effects of dredging, dredge-spoil disposal, municipal and industrial wastes, and navigation on the productivity of benthic invertebrates and vegetation in these waters.

Al Sherk; DOI, F&WS
FY 78; $55.9K FY 79; $55K FY 80; †

871. Ecology and Limnology: Atlas of the Spawning and Nursery Habitat of Great Lakes Fishes

Prepare for publication an Atlas identifying on maps and describing in narrative text, areas of the Great Lakes utilized as fish-spawning and -nursery habitat.

Al Sherk; DOI, F&WS
FY 78; $45K FY 79; $74K FY 80;

872. Physiology and Contaminant Chemistry: Contaminant Dynamics

Investigate the dynamics and possible effects of contaminants in fish and the environment of the Great Lakes. Develop improved methodology for determination of chemical contaminants in fish tissues and other environmental materials. Determine the identity, severity, distribution, and changing trends of contaminations that are a potential threat to fish and fisheries of the Great Lakes. Evaluate the effectiveness of past enforcement actions in reducing contamination of Great Lakes fish and the possible need for additional regulatory controls.

Al Sherk; DOI, F&WS
FY 78; $113.5K FY 79; $350K FY 80;

873. Physiology and Contaminant Chemistry: Physiology and Behavior

Determine the physiological and behavioral responses of Great Lakes fishes to environmental stresses that exist or are anticipated in the Great Lakes environment. Assess the potential impact of environmental stresses (both individually and in combination) on Great Lakes fish populations. Describe energy budgets for Great Lakes fishes and evaluate experimentally the effects of changes in environmental variables on those budgets.

Al Sherk; DOI, F&WS
FY 78; $161K FY 79; $162K FY 80;

874. Physiolgy and Biology: Contaminant Toxicology

Develop toxicological tests capability of measuring the acute and chronic effects of contaminants in Great Lakes fishes and invertebrates.

Al Sherk; DOI, F&WS
FY 78; $85.1K FY 79; $82K FY 80;

875. Effects on Contaminants on Wildlife of Estuarine and Marine Environments

This project includes research to identify the kinds of contaminants to which fish-eating and wading birds, Alaskan seabirds, certain marine mammals, and other estuarine and marine species are exposed.

Al Sherk; DOI, F&WS
FY 78; $900K FY 79; $700K FY 80;

876. Ecological Characterization of the Sea Islands and Coastal Plains of South Carolina and Georgia

The objective is the structured synthesis of existing information and data into an information base identifying the functional relationships of natural processes and components of the ecosystem.

Al Sherk; DOI, F&WS
FY 78; $50K FY 79; $50K FY 80;

877. Ecological Characterization of the Chenier Plain of S.W Louisiana and S.E. Texas

The objective is the structured synthesis of existing information and data into an information base identifying the functional relationships of natural processes and components of the ecosystem.

Al Sherk; DOI, F&WS
FY 78; $30.3K FY 79; $65K FY 80; †

878. Ecological Characterization of the Coastal Region of Maine

The objective is the structured synthesis of existing information and data into an information base identifying the functional relationships of natural processes and components of the ecosystem.

Al Sherk; DOI, F&WS
FY 78; $150K FY 79; * FY 80; *

879. Ecological Characterization of the Pacific Northwest Coastal Region

The objective is the structured synthesis of existing information and data into an information base identifying the functional relationships of natural processes and components of the ecosystem.

Al Sherk; USDI, F&WS
FY 78; $50K FY 79; $50K FY 80;

880. Mississippi Deltaic Plain Region Characterization

The objective is the structured synthesis of existing information and data into an information base identifying the functional relationships of natural processes and components of the ecosystem.

Al Sherk; DOI, F&WS
FY 78; $10K FY 79; $50K FY 80;

881. Assessment of Oil and Gas Development on Federal Refuges along the Gulf Coast

The objective is to develop a report which describes and documents the management of oil and gas development on wildlife refuges along the Louisiana and Texas coasts through an analysis of guidelines, standards and stipulations imposed on development activities in these areas.

Al Sherk; DOI, F&WS
FY 78; $14.8K FY 79; * FY 80; *

DEPARTMENT OF THE INTERIOR (FWS)

882. Environmental Planning for Offshore Oil and Gas

The objective is to understand and prepare for the full range of primary and secondary environmental effects of the five phases of petroleum development: pre-exploration, exploration, oil field development, production and transport.

Al Sherk; DOI, F&WS
FY 78; $15K FY 79; * FY 80; *

883. Ecological and Physiological Effects of Oil on Birds

The objective is to test and adapt analytical methods for identification of oil on tissues and eggs, evaluate the effects of oil on viability of eggs and on survival, to assess the prevalence of oil ingestion by wild birds and relate tissue levels of oil to damage, and to assess the joint effects of oil and chemicals on survival.

Al Sherk; DOI, F&WS
FY 78; $90K FY 79; $280K FY 80;

884. Great Lakes Winter Navigation Environmental Studies Program (Feasibility Phase)

To assess the feasibility of the winter navigation program in the Great Lakes through a broad analysis of economic, social and environmental concerns.

Al Sherk; DOI, F&WS
FY 78; $50K FY 79; $50K FY 80; *

885. Factors Associated with Accuracy in Sampling Fish Eggs and Larvae

In FY 76, a contract was let to assess the environmental factors which affect an accurate sampling of fish eggs and larvae; and to determine those gear design features that need to be maximized to obtain accurate samples under a variety of environmental conditions. In FY 79; a technical report and Tropical Brief will be completed.

Al Sherk; DOI, F&WS
FY 78; † FY 79; $1.1K FY 80; *

886. Techniques for Predicting Entrainment and Impingement at Power Plants

A three-dimensional model for predicting the number of organisms entrained or impinged at a power plant will be completed early in FY 79 by the University of Tennessee. The model has the capability of considering the motion of organisms within the water body.

Al Sherk; DOI, F&WS
FY 78; † FY 79; $9.5K FY 80; †

887. Density-Dependent Mortality Model

A model for predicting the effects on fish populations of entrainment and impingement of fish eggs and larvae, considering density-dependent mechanisms will be completed by VPI early in FY 79. During FY 79 the model will be verified, the contractor's report modified as a necessary and the report published by the National Power Plant Team.

Al Sherk; DOI, F&WS
FY 78; † FY 79; $1K FY 80;

888. Methods for Assessing Impacts on Fish and Shellfish

An in-house study with contract support began in FY 76 to develop a manual summarizing proper hypothesis-setting, experimental design and use of descriptive, comparative or predictive methods needed to conduct meaningful environmental assessment. This effort includes integration of the results of several ongoing and completed studies: 1) Predicting the Effects on Fish Populations of Entrainment and Impingement of Fish Eggs and Larvae (Density-dependant Mortality Model); 2) Factors Associated with Accuracy in Sampling Fish Eggs and Larvae; and 3) Model for Predicting Entrainment and Impingement.

Al Sherk; DOI, F&WS
FY 78; $15K FY 79; $10K FY 80; †

889. Management of Transmission Line Rights-of-Way for Fish and Wildlife Habitat

A technical assistance manual is being prepared to integrate fish and wildlife management techniques and special problems in transmission line right-of-way management into comprehensive management strategies for this type of land.

Al Sherk; DOI, F&WS
FY 78; $66.1K FY 79; † FY 80; †

890. Efforts of Davis Besse Nuclear Power Plant on Lake Erie

Purpose is to specify changes in plankton benthos & fish populations caused by thermal discharges from the Davis-Besse nuclear power station into Lake Erie and to correlate laboratory predictions of the reactions of Lake Erie fish to thermal discharges with the final report including recommendations for developing and managing fishery in discharge plumes.

Al Sherk; DOI, F&WS
FY 78; $48K FY 79; $48K FY 80;

891. Great Lakes Surveillance

The purpose is to improve surveillance and assessment of the effects of both man's perturbation and natural factors on Great Lakes ecosystems with particular emphasis on fish and the evaluation of water quality.

Al Sherk; DOI, F&WS
FY 78; $160K FY 79; $160K FY 80;

892. National Pesticide Monitoring Network for Birds-Waterfowl

The purpose is to monitor nationwide trends in space and time of organochlorine pesticides and related compounds and selected metals in wetland birds.

Al Sherk; DOI, F&WS
FY 78; $120K (every third year)

893. National Freshwater Fish Monitoring Network

The purpose is to monitor nationwide trends (space & time) organochlorine pesticides and related compounds and selected trace metals in freshwater fish.

Al Sherk; DOI, F&WS
FY 78; $100K FY 79; $100K FY 80; $100K

894. Texas Barrier Island Ecosystem Characterization

The objective is the structured synthesis of existing information and data into an information base identifying the functional relationships of natural processes and components of the ecosystem.

Al Sherk; DOI, F&WS
FY 78; † FY 79; $200K FY 80; $100K

895. Ecological Characterization of Central and Northern California Coastal Region

The objective is the structured synthesis of existing information and data into an information base identifying the functional relationship of natural processes and components of the ecosystem.

Al Sherk; DOI, F&WS
FY 78; †   FY 79; $34K   FY 80; $34K

896. Seabird Nesting and Seasonal Use Survey for the Central and Northern California Coastal Region

The objective is the determination of the composition, distribution and abundance of seabird of Central Northern California.

Al Sherk; DOI, F&WS
FY 78; †   FY 79; $21K   FY 80;

897. Environmental Effects of Trans-Alaska Pipeline

Determine the effects of the Trans-Alaska pipeline on the marine environment of Port Valdez and Prince William Sound.

R. Myren; DOI, F&WS
FY 78; $150K   FY 79; †   FY 80; †

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

Funding Summary

(in thousands of dollars)

FY 78	FY 79	FY 80
$1750	$531	$650

898. Analysis and Interpretation of Remotely Sensed Great Lakes Water Quality Data

Transfer modeling of the scattering and absorbtion of substances within the water body to predict upwelling spectral radiances, and initiate attempts to invert this process to determine characteristics of the substances in the water. Document techniques and results, including evaluations by users of data products produced. Investigate additional methods for analysis and interpretation of remotely sensed data for water quality and pollution parameters as derived from cooperative programs with EPA and other users in the Great Lakes. In particular, increase the utilization of theoretical methods for prediction of spectral radiance and the subsequent inversion for purposes of data interpretation.

Richard T. Gedney; NASA, Lewis Res. Ctr.
FY 78; $210K FY 79; $148K FY 80; $210K

899. Coastal Zone Investigations for Ocean Dumping and Environmental Baseline Monitoring

Complete the evaluation of the application of existing remote sensing techniques to ocean dumping monitoring tasks. Provide the necessary coordination and planning with NOAA-MESA/NESS and other participating NASA Centers in ASVT planning.

E.B. Pritchard; NASA, Langley Res. Ctr.
FY 78; $300K FY 79; $249K FY 80; $300K

900. Develop and Investigate Potential of Space Technology for Oil Spills and Ocean Pollution Monitoring

The overall objectives are to evaluate the potential and to develop remote sensing technology for the monitoring of (1) oil spills and (2) ocean pollution. A particular emphasis is to be an assessment of the potential of satellite systems using current space technology to detect and monitor oil spills in U.S. ocean waters.

Howard J. Curfman; NASA, Langley Res. Ctr.
FY 78; $1000K FY 79; $134K FY 80; $50K

901. Red Tide and Coastal Zone Water Characteristics

Technical Objectives: (1) Develop and demonstrate techniques to detect and discriminate between red tide and other related plankton blooms and to infer bloom concentrations. (2) Develop spectral signature analyis techniques using field laboratory spectra to improve the capability of remote sensing to detect and quantify specific water pollutants. (3) Support as required the red tide and spectral signature work with overflights of the Ocean Color Scanner (OCS) and the high-speed spectrometer.

William L. Barnes; NASA, Goddard Space Flight Ctr.
FY 78; $240K FY 79; * FY 80; $90K

NATIONAL SCIENCE FOUNDATION

Funding Summary

(in thousands of dollars)

FY 78	FY 79	FY 80
$15,534	$15,006*	$13,655*

* Includes funds in program area not yet allocated to specific projects.

902. Petroleum Hydrocarbons in the Sediment of the Bermuda Platforms

Fate of hydrocarbons released from pelagic tar balls after deposition on the seafloor or coast. Coastal to abyssal sediments off Bermuda are being sampled. Tar ball pollution is a worldwide problem generally attributed to transportation of crude oil. Bermuda is being used as a research site due to relative isolation from other industrial sources of hydrocarbon pollution.

James Butler; Harvard Univ.
FY 78; † FY 79; $43K FY 80; †

903. Polycyclic Aromatic Hydrocarbons in the Sediment

PAH and related compounds have a worldwide distribution suggestive of human origin. This project is to determine if PAH is indeed due to industrial or natural fires. This project will also determine the behavior of this class of pollutants in seawater.

Donald Hites; Massachusetts Institute of Technology
FY 78; † FY 79; $43K FY 80;

904. Basic Marine Chemical Research Contributing Information to the Pollutant Areas of Artificial Compounds and Metals

Research on poorly known natural chemical systems is being conducted so that the behavior of pollutants in these systems and the behavior of these systems when altered can be better predicted. The systems include: a) kinetics of methane consumption; b) sedimentary cycling of nitrogen compounds; c) sulfate reduction in the water column; d) acid-base behavior of seawater.

Neil Anderson; NSF
FY 78; $530K FY 79; $530K FY 80;

905. Basic Marine Chemical Research Contributing Information to the Pollutant Area of Dredging and Large Scale Waste Disposal Operations

Research is focused upon: a) distribution of artificial radionuclides in the ocean; b) transport of artificial radionuclides in coastal areas; c) open ocean transport and fate of radionuclides; d) chemical behavior of ligands of metals.

Neil Anderson; NSF
FY 78; $330K FY 79; $330K FY 80;

906. Natural Products from Marine Algae

Marine algae produce chemical compounds which have effects upon other marine organisms. When released in the environment during resource exploitation, these compounds may have highly detrimental environmental affects. Research is directed towards determining the chemical and biological properties of such compounds.

Richard E. Moore; Univ. of Hawaii
FY 78; $38K FY 79; † FY 80; †

907. Water Soluble Molecules Containing Hydrophobic Cavities

This research is investigating the possibility of synthesis of a class of compounds capable of combining with and removing specific pollutants from seawater.

Howard W. Whitlock; Univ. of Wisconsin
FY 78; $24K FY 79; $25K FY 80;

908. Controlled Ecosystems Populations Experiment (CEPEX)

Large plastic enclosures floating in the ocean are being used as test models to determine biological effects of metals and organic pollutants upon the pelagic ecosystem. Pollutants are added to the enclosed system and then comparisons are made with the natural environment.

George Grice; Woods Hole Oceanographic Inst.
FY 78; $2000K FY 79; † FY 80; †

909. Sea Air Exchange Studies

This study is examining the flux of airborne metal and organic pollutants into the surface water of the ocean. The study is being conducted in the remote Pacific (Enewetok) to reduce interference from local industrial pollutant sources.

Robert Duce; Univ. of Rhode Island
FY 78; $1,000K FY 79; $1,000K FY 80; †

910. The Role of Toxic Metals in Phytoplankton Ecology

Trace metal toxicity will be studied using three species of marine algae. The combined effects of trace metals and various levels of nutrients will be studied. The effect of metal concentration upon interspecies competition will be studied.

Rodger Baier, NSF
FY 78; $112.2K FY 79; † FY 80; †

911. Pollutant Responses in Marine Animals

The effects upon physiological systems in a variety of marine organisms will be determined for three classes of organochlorine and benzophyrine compounds.

C.S. Giam; Texas A & M Univ.
FY 78; $300K FY 78; $300K FY 78;

912. Seagrass Ecosystem Study

This project is aimed at producing a critical assessment of the resources associated with the seagrass ecosystem and man's impact upon this system. Such systems are worldwide and of great importance in the marine ecosystem. Being coastal, they receive pollution from many sources.

Kent W. Bridges; Univ. of Hawaii
FY 78; $700K FY 79; $491K FY 80;

913. Basic Research in Biological Oceanography

These projects are directly applicable to pollution problems in that they are undertaken in order to understand the structure and function of marine ecosystems under mostly natural conditions. Research is spread from coast to abysssal environments and from cellular to oceanic scale.

Richard Williams; NSF
FY 78; $5100K FY 79; $5100K FY 80;

NATIONAL SCIENCE FOUNDATION

914. Coastal Upwelling Ecosystems Analysis (CUEA)

The main goal of this project is to improve long range forcasting of upwelling events so that the resulting fisheries resources can be preserved-managed, and wisely exploited.

Richard Barber; Duke Univ.
FY 78; $1700K FY 79; $1344K FY 80;

915. Basic Research in Physical Oceanography on Water Movement

Most physical oceanography projects are directed towards modeling current and turbulent transport from global to one meter scales. This research is undertaken so that predictive transport models may be constructed.

Peter Hacker; NSF
FY 78; $3700K FY 79; $ 3800K FY 80;

NUCLEAR REGULATORY COMMISSION

Funding Summary

(in thousands of dollars)

FY 78	FY 79	FY 80
$1,245	$955	$965

916. Methods to Assess Impacts on Hudson River White Perch

To determine the significance of impingement losses on the white perch population in the lower Hudson River.

H. Berkson; NRC
FY 78; $25K FY 79; $80K FY 80;

917. Products, Pathways, Effects, and Fate of Chlorination Byproducts

The objectives are to: (1) measure and identify those chemical compounds formed when chlorine is added to freshwater and marine and estuarine waters, (2) develop methods for detecting concentrations of chlorinated hydrocarbons in the effluents discharged to receiving water bodies from nuclear station, (3) investigate the acute and chronic toxicity of several chlorinated by-products of freshwater and marine species, (4) characterize the pathways of chlorinated by-products in aquatic organisms, and (5) analyze for biomagnification of chlorinated hydrocarbons in aquatic species.

H. Berkson; NRC
FY 78; $471K FY 79; $280K FY 80;

918. Sources of Entrainment Mortality During Simulated Condenser Tube Passage

To use a power plant condenser tube simulator to examine the response of entrainable aquatic organisms to physical (thermal, hydraulic and mechanical) and chemical stresses associated with pumped entrainment process.

H. Berkson; NRC
FY 78; $90K FY 79; $90K FY 80;

919. The Effects of Nuclear Power Plant Operations on Populations of Boring and Fouling Organisms

The objective is to quantify the effects of thermal regime changes on the species composition and population dynamics of boring members of an estuarine community and the fouling elements of the community as they affect the borers. Economically positive or negative changes wrought by invading species are of particular concern.

H. Berkson; NRC
FY 78; $83K FY 79; $60K FY 80;

920. Methods to Assess Impacts on Hudson River Striped Bass

To collect, compile, and analyze data and information on striped bass, and to develop and apply models to determine the significance of entrainment and impingement losses in the Hudson River.

H. Berkson; NRC
FY 78; $80K FY 79; $90K FY 80;

921. Kinetics of Chlorine - Ammonia Reactions in Sea Water

The objectives are: to understand the chemical nature and lifetime of compounds formed when chlorine is added to marine waters containing ammonia, to provide information on alternative approaches to using chlorine for biofoulant control in main condenser cooling systems, to provide quantitative data which could be used as input to mathematical models to predict the concentrations and lifetimes of chlorine by-products discharged to marine waters from nuclear power plants, and to provide an understanding of chlorine demand in receiving water bodies.

H. Berkson; NRC
FY 78; $75K FY 79; FY 80;

922. Chemical Effluents from Nuclear Power Plants: Copper

This program is designed to: (1) characterize the chemical form and behavior of copper discharged into surface waters as effluents from nuclear power stations, (2) obtain data and information on the behavior of copper in the sediments of receiving water bodies at nuclear station sites, (3) determine the magnitude of the impact of copper on representative species, and (4) develop models suitable to NRC applications for predicting and assessing environmental impacts of copper released from nuclear power stations.

H. Berkson; NRC
FY 78; $226K FY 79; $140K FY 80;

923. Sediment and Radionuclide Transport in Rivers (Transport Modeling)

The objective is to verify the unsteady, two-dimensional sediment and radionuclide transport model SERATRA by application to Cattaraugus and Buttermilk Creeks. A secondary objective is to assess the potential migration of radionuclides from the waste burial site near West Valley, New York to the mouth of Cattaraugus Creek and to Lake Erie.

H. Berkson; NRC
FY 78; $154K FY 79; $150K FY 80;

924. Distribution Coefficients for Radionuclides in Aquatic Environments

Determine distribution characteristics (K_d) for water-sediment systems for Cs-134, Cs-137, Sr-90, Ru-106, Pu-237, Am-241 and Cm-244 in Lake Michigan, Clinch River, Tennessee, Cattaraugus and Buttermilk Creeks, New York, and three sediment-water systems from the Hudson River Estuaries.

H. Berkson; NRC
FY 78; † FY 79; † FY 80;

925. Environmental Behavior of Transuranics Discharged to Marine Environments

To determine the form and behavior of the transuranic elements released to marine waters from nuclear power plants.

H. Berkson; NRC
FY 78; $40K FY 79;† FY 80;†

926. Unified Transport Model

Develop methodology for near field and far field analyses of two dimensional flow accounting for mass, momentum and energy.

H. Berkson; NRC
FY 78; $1K FY 79; $65K FY 80;

DEPARTMENT OF TRANSPORTATION

Funding Summary

(In thousands of dollars)

	FY 78	FY 79	FY 80
U.S. Coast Guard			
Marine Environmental Protection	$8,405	$7,923	$5,991
Commercial Vessel Safety	$ 278	$ 525	0
Port Safety	$ 120	0	0
Total *	$8,803	$8,448	$5,991

* These totals do not include pro-rata shares of USCG multi-mission operating facilities costs (e.g., vessel, aircraft, and personnel costs) attributable to marine environmental protection monitoring and R&D support, except in the few specific instances cited in the following project descriptions.

Note: An overview and further contact information for all listed USCG projects may be obtained by calling CDR J.T. Leigh or LCDR W.W. Becker (202-426-1023) or CDR J.L. Valenti (202-426-9568).

U.S. Coast Guard (USCG)

Marine Environmental Protection

927. Chemical Hazards Response Information System (CHRIS), DATA GAPS

CHRIS provides information for use by field personnel in combating hazardous chemical spills. It contains physical, chemical, and toxicological information as well as models which predict the movement and transformation of spilled chemicals. The present project involves filling data gaps on the 900 CHRIS chemicals and experimental efforts to verify and updata 18 existing hazard assessment models.

M. Parnarouskis; HQ Office of R&D; USCG
FY 78; $300K FY 79; $430K FY 80;

928. Arctic Pollution Response

This project seeks to develop procedures and equipment to detect, control, clean-up, and/or abate oil pollution in ice-infested waters

Marine Environmental Protection (continued)

of Alaska, the Northeast, and the Great Lakes.

C.D. Mckindra; HQ Office of R&D; USCG
FY 78; $130K FY 79; $475K FY 80;

929. Oil Spill Dispersant System Development

This project involves the development of equipment and procedures for the use of chemicals to disperse marine oil spills. Complementary work on dispersant chemical effectiveness, toxicity, and safe usage procedures is being done by the USEPA.

LCDR C.B. Doherty; HQ Office of R&D; USCG
FY 78; * FY 79; * FY 80; *

930. Special Techniques and Procedures

This project evaluates and advances promising unusual concepts for marine oil spill control and removal. In-situ burning, sorbents, sinking agents, and bacterial agents are being considered. The primary present emphasis is on development of a sorbent oil recovery system adaptable to use from several types of ships.

K.R. Goldman; HQ Office of R&D; USCG
FY 78; $150K FY 79; $350K FY 80;

931. Fast Current Oil Removal System

This project will provide a capability to recover spilled oil in fast current environments where conventional containment and recovery methods will not work for hydrodynamic reasons. Present emphasis is on construction, testing, and redesign of the ZRV (Zero Relative Velocity) oil recovery vessel, the prototype of which is under construction at the Coast Guard's Baltimore Shipyard.

LCDR W. W. Becker; HQ Office of R&D; USCG
FY 78; $580 FY 79; $500K FY 80;

932. Open Ocean Pollution Response Systems

This project is concerned with the development of equipment and procedures for open ocean oil pollution response. Present activities include integration of existing Coast Guard hardware and tests of commercially available equipment.

LCDR W. W. Becker; HQ Office of R&D; USCG
FY 78; $435K FY 79; $295K FY 80;

Marine Environmental Protection (continued)

933. Multi-Agency OHMSETT Tests

This project funds Coast Guard involvement in the OHMSETT Interagency Test Committee which evaluates state of the art pollution control equipment, and develops pollution response hardware and procedures using EPA's Oil and Hazardous Materials Simulated Environment Test Tank. The EPA, Navy, DOE, USGS and Canadian Department of Environment are also involved. We also provide personnel, ship, and aircraft to support the Committee's tests. These costs are not included below.

LCDR W. W. Becker; HQ Office of R&D; USCG
FY 78; $75K FY 79; $75K FY 80;

934. Pollution Response Systems Tests/Instrumentation

This project provided for the development of a pollution response systems test capability at the Coast Guard's Groton, Connecticut Research and Development Center.

LCDR W. W. Becker; HQ Office of R&D; USCG
FY 78; $41K FY 79; † FY 80; †

935. Recovery Device O/W Separator

This project seeks to develop a high capacity system for separating water from recovered spilled oil to reduce the storage and transport volumes to improve marine spill response logistics.

LTJG D.G. Hutchinson; HQ Office of R&D; USCG
FY 78; $100K FY 79; $30K FY 80; *

936. Develop Prevention & Reduction Techniques for Oil

This project seeks to develop equipment and procedures for preventing spills of oil from striken tankers or to significantly reduce spill quantities. The project involves damage assessment, salvage, repair cargo transfer and disposal and is coordinated with the U.S. Navy Supervisor of Salvage.

LT G.D. Marsh; HQ Office of R&D; USCG
FY 78; † FY 79; † FY 80;

937. Oil Slick Burning

This is a cooperative project with the U.S. Department of Energy to determine the conditions under which oil spilled on water can be dis-

Marine Environmental Protection (continued)

posed of by burning and to develop in-situ burning procedures and equipment, if feasible.

K.R. Goldman; HQ Office of R&D; USCG
FY 78; $75K FY 79; $100K FY 80; †

938. Natural Dispersion of Oil Slicks

This project seeks to develop a capability to predict the natural dispersion of oil in rough seas in order to determine how much of a spill is recoverable and the sea conditions for which a recovery capability must be developed and to improve oil spill movement models used by response forces.

R. Griffiths; HQ Office of R&D; USCG
FY 78; * FY 79; $200K FY 80;

939. Hazardous Chemical Discharge Prevention and Reduction

This project seeks to develop equipment and procedures to prevent and reduce discharges of hazardous chemicals into the waters of the United States, especially from marine-related transport and storage systems.

LCDR C.B. Doherty; HQ Office of R&D; USCG
FY 78; $214K FY 79; $275K FY 80;

940. Containment, Treatment, and Recovery of Hazardous Chemical Discharges

This project seeks to develop equipment and procedures for preventing further movement, rendering less harmful, and ultimately recovering hazardous chemicals discharged into U.S. waters. Different technologies are required for vapors and chemicals that mix with water, float and sink.

J.R. Sinclair; HQ Office of R&D; USCG
FY 78; $75K FY 79; $450K FY 80;

941. Disposal of Oil and Hazardous Chemical Discharges

This project seeks to develop a capability for the safe and efficient disposal of recovered oil and hazardous chemical spill materials. Complimentary work is being carried out by the U.S. EPA.

J.R. Sinclair; HQ Office of R&D; USCG
FY 78; $3K FY 79; $300K FY 80;

Marine Environmental Protection (continued)

942. Hazardous Chemical Discharge Detection, Identification and Quantification

This project seeks to develop means for the rapid detection of hazardous chemicals spills, the means for response personnel to identify the chemical with which they are dealing, and the ability to determine the extent of a spill.

J.R. Sinclair; HQ Office of R&D; USCG
FY 78; $150K FY 79; $175K FY 80;

943. Hazardous Chemical Discharge Personnel Protection

This project seeks to develop equipment and procedures which assure the safety of hazardous chemical spill response personnel. Protective clothing, breathing systems, and monitoring devices are under development. The U.S. Army and the EPA are conducting complementary research.

LT D. Rome; HQ Office of R&D; USCG
FY 78; $375K FY 79; $300K FY 80;

944. Extreme Weather Pollution Response

This project seeks to develop the capability to respond to oil spills during adverse weather conditions. The open ocean pollution response, sorbent oil recovery, and prevention and reduction projects are related to this. A "systems" study was completed in FY 1979 and a response equipment guide is presently being prepared.

R. Griffiths; HQ Office of R&D; USCG
FY 78; $198K FY 79; $30K FY 80; †

945. Pollution Response Equipment & Siting Requirements

This project analyzed historic oil spill incident data and projected likely future spills by volume and location in order to assess spill response equipment needs and equipment siting and logistics requirements.

LT G. Marsh; HQ Office of R&D; USCG
FY 78; $332K FY 79; † FY 80; †

946. Spill Response Planning

This is a continuation of the previous project by the DOT Transpor-

Marine Environmental Protection (continued)

tation Systems Center.

CDR J. Valenti; HQ Marine Environmental Protection Division; USCG
FY 78; † FY 79; $110K FY 80; *

947. Development of an Active Gated Television System

The Active Gated Television is a night vision sensor which will be used to enforce oil pollution discharge laws against suspected vessels and facilties. It is expected to be a component of the Airborne Remote Instrumentation System (AIREYE).

LCDR J.R. White; HQ Office of R&D; USCG
FY 78; $998K FY 79; $1107K FY 80; *

948. Towed Fluorometer for Measuring Subsurface Oil and Hazardous Chemical Dispersion

This project involves tests of a ship-towed fluormeter to determine its usefulness for quantitive mapping of subsurface flows of oil and hazardous chemicals resulting from accidental or illegal discharges.

R.R. Hiltabrand; USCG R&D Center, Groton, Conn.
FY 78; $17K FY 79; † FY 80; †

949. Development of an Airborne Remote Instrumentation System, Designated AIREYE

This project involves the development of a multi-sensor system for detecting illegal discharges of oil from ships and near-shore facilities. The system will be installed in Coast Guard aircraft and used as a surveillance and law enforcement tool. It has several other applications.

LCDR J.R. White; HQ Office of R&D; USCG
FY 78; $2752K FY 79; $1275K FY 80;

950. Ocean Dumping Surveillance System

This project developed a law-enforcement surveillance device which records the time and location of dumping by vessels to determine compliance with ocean dumping permits. The device uses Loran-C navigational signals.

Lt. G. Voyik; HQ Marine Environmental Protection Division; USCG
FY 78; $21K FY 79; † FY 80; †

Marine Environmental Protection (continued)

951. Local Area Surveillance Systems

The purpose of this project is to develop and evaluate a sensor system which detects spills of oil and hazardous chemicals into harbors and other restricted waterways for response initiation and law enforcement purposes.

Lt D.J. Grasso, Jr.; HQ Office of R&D; USCG
FY 78; † FY 79; $165K FY 80; *

952. Pollution Identification and Sampling System

The purpose of this effort is to develop instruments and analytical techniques to sample, detect, identify, and quantify pollutants (oil and hazardous chemicals) in the marine environment with sufficient accuracy to determine their sources for purposes of litigation. The oil identification system has led to judgements against otherwise unknown pollutors.

G. A. Kleineberg; USCG R&D Center, Groton, Conn.
FY 78; $600K FY 79; $390K FY 80;

953. Pollution Abatement (Oily)

This project seeks to improve the effectiveness of the oil pollution abatement systems used on Coast Guard ships. Current work involves development of a low-cost discharge monitor and of a detergent or cleaning solvent which is compatable with installed bilge water oil removal systems.

LTJG D.G. Hutchinson; HQ Office of R&D; USCG
FY 78; † FY 79; $100K FY 80; *

954. Vessel Waste Management - Flow-Thru-Wastewater

This project seeks to develop a system for treating non-oily waste waters from Coast Guard ships so that effluents will meet applicable federal standards. The U.S. Navy is doing complementary research.

T.S. Scarano; HQ Office of R&D; USCG
FY 78; $102K FY 79; † FY 80; †

955. Vessel Waste Management - Vessel Waste Incinerator

This project seeks to develop an incinerator for use in disposing of the sludge produced by shipboard wastewater treatment systems used

Marine Environmental Protection (continued)

by the Coast Guard. The project takes advantage of similar Navy work.

T.S. Scarano; HQ Office of R&D; USCG
FY 78; $15K FY 79; † FY 80; †

956. Vessel Waste Management Integrated/Reuse Wastewater Management System

This project attempts to develop an integrated wastewater management system for the reclamation and reuse of wastewater on Coast Guard vessels.

T.S. Scarano; HQ Office of R&D; USCG
FY 78; $125K FY 79; † FY 80; †

957. Vessel Waste Management - Program Manager Technical Support

Technical support services are provided to Coast Guard elements having vessel pollution abatement problems.

T.S. Scarano; HQ Office of R&D; USCG
FY 78; † FY 79; $50K FY 80;

958. Vessel Waste Management - Solid Waste Management

This project seeks to develop an integrated solid waste management system for use on Coast Guard vessels. It capatilizes on similar Navy work.

T.S. Scarano; HQ Office of R&D; USCG
FY 78; $91K FY 79; $290K FY 80; †

959. Protective Location of Segregated Ballast on Tankers

This project involves design, cost and accidental oil outflows from tankers and the gathering of data on accidental damage resulting from collisions, rammings and groundings for the purpose of locating segregated ballast on tankers.

LCDR R. Tweedie; HQ Merchant Marine Technical Division; USCG
FY 78; † FY 79; * FY 80; *

960. Pollution Incident Reporting System (PIRS)

PIRS is a computerized data base of all pollution incidents affecting U.S. waters, actual or potential reported to or detected by the Coast

Marine Environmental Protection (continued)

Guard. Developed in December of 1971 and modified in 1973, the system allows for the collection of data concerning discharge, response and penalty action when applicable, for each incident. Information supplied by PIRS is utilized by the Coast Guard in management of its marine environmental protection mission and by Congress, academia, private firms and individuals. Requests for PIRS data are processed at Coast Guard headquarters with an average response time of one week from receipt of request.

LCDR A. Adams; HQ Marine Environmental Protection Division; USCG
FY 78; $200K FY 79; $200K FY 80;

961. Aerial Pollution Surveillance Patrols

The Coast Guard conducts regular aerial pollution surveillance patrols of all major and coastal areas out to 12 miles. Coastal areas from 12-50 miles are patrolled on a time availabile basis. Recently, the Clean Waters Act expanded the Coast Guard's surveillance responsiblity out to 200 miles. To do this, the service is developing a sensor package which will be carried in its new Medium Range Search aircraft. This system will be known as AIREYE and will be capable of 24 hour, daylight detection and mapping of oil and some hazardous chemical slicks and identifying violators. This system will be operational by early 1982.

Lt. G. Voyik; HQ Marine Environmental Protection Division; USCG

No funds are identifible for this support since it is an integral part of CG multi-mission operations.

962. IGOSS-Marine Pollution Monitoring Pilot Project Floating Particulate Petroleum-Tarballs

Approximately 20 vessels are equipped to conduct tarbell tows. The samples are forwarded to the Coast Guard Oceanographic Unit, Washington D.C. Previously, estimates of areal distribution of tar at various locations in the open sea was determined through sample collections and plans were underway for a cooperative project involving exchange of tarballs for biological matter.

Lt. G. Voyik; HQ Marine Environmental Protection Division; USCG
FY 78; $1K FY 79; $1K FY 80;

963. IGOSS-Observations of Oil Slicks and Other Floating Materials

This monitoring is conducted by CG cutters and carried out on the high seas and in U.S. territoral waters that are not inland or

Marine Environmental Protection (continued)

estuarine. Areas of special interest include regions of offshore oil production, the main routes of oil transportation and the major ocean currents. No instrumentation is required, all sightings are visual. Wind speed and direction, and wave period and height are logged at time of sighting. The information is submitted to NOAA's oceanographic data center and is entered into the Coast Guards PIRS.

Lt. G. Voyik; HQ Marine Environmental Protection Division; USCG

No specific funds are identified for this support since its an integral part of CG multi-mission operations.

964. Ocean Dumping Monitoring Assistance

Title II of the Marine Protection, Research and Sanctuaries Act of 1972, as amended directs the Secretary of Commerce in coordination with the Secretary of Transportation (Coast Guard) to conduct a continuing program of monitoring and research regarding the effects of the dumping of material into ocean waters. The Coast Guard provides high or medium endurance cutters to support teams of scientists on 8-14 day monitoring cruises. In addition, short duration sample patrols are occasionally conducted by 82-95 foot patrol boats on request. Sampling at historical stations, including bottom dredges, hydrocasts and sediment retrievals, is conducted.

Lt. G. Voyik; HQ Marine Environmental Protection Division; USCG
FY 78; $250K   FY 79; $250K   FY 80;

FY 77 actual operating cost = $250K, however, no funds are identified for this support since it is an integral part of USCG multi-mission operations. The indicated funding is an estimate.

Commercial Vessel Safety

965. Vapor Cloud Explosion Study

This is a cooperative study undertaken by the USCG, the DOT office of Pipeline Safety, DOE, and the American Gas Association to gain a better appreciation of the physical phenomena involved in the spilling of flammable cyrogenic fluids, particularly, liquified natural gas. The work is being performed by the U.S. Naval Weapons Center, China Lake, California and the Jet Propulsion Laboratory and involves a series of instrumental spills and burnings of LNG and LPG.

M. Parnarouskis; HQ Office of R&D; USCG
FY 78; $88K   FY 79; $500K   FY 80; †

Commercial Vessel Safety (continued)

966. Tank Barge Oil Pollution Study

This study was conducted to determine the causes of tank barge spills in U.S waters and the extent of the resulting pollution as background for Coast Guard marine safety regulatory and marine environmental protection actions.

LCDR E. Johnson; HQ Merchant Marine Technical Division; USCG
FY 78; $40K FY 79; † FY 80; †

967. Development of Tanker Accident, Oil Outflow and Exposure Files

This project compiled and updated USCG statistics on worldwide oil tanker accidents and oil outflow volumes.

P.V. Ponce; HQ Merchant Marine Technical Division; USCG
FY 78; $140K FY 79; $25K FY 80; †

968. Oil-Water Separator Test Facility Quality Control Program

This project involves the preparation of oil samples for analysis by commercial laboratories seeking authorization to test shipboard oil pollution equipment subject to Coast Guard approval.

Lt. S. McCall; HQ Merchant Marine Technical Division;
FY 78; $10K FY 79; † FY 80; †

Port Safety

969. Offshore Vessel Traffic Management (OVTM) Study

This study drew on a number of sources to analyze the causes of tanker and other vessel casualties that could result in oil pollution, and evaluated alternative vessel traffic management schemes for use in U.S. offshore waters for the reduction of such accidents.

R. Bland; HQ Office of R&D; USCG
FY 78; $120K FY 79; † FY 80; †

APPENDIX A

PROJECT CLASSIFICATION SYSTEM AND INDEX

This section includes in Part 1, a description of the categories used to classify projects reported in the catalog, and in Part 2, an index cross referencing projects as they were placed in these categories for analysis.

PART 1 - PROJECT CLASSIFICATION SYSTEM

I. Pollutants of Concern

1. Petroleum and Petroleum Products
2. Synthetic Organic Chemicals
3. Metals and Inorganic Chemicals
4. Artificial Radionuclides
5. Habitat Modification and Sedimment Deposition
6. Nutrients and Other Biostimulants
7. Cooling Water
8. Microorganisms and Pathogens
9. Chlorination Products
10. Other Pollutants
11. Not Pollutant Specific

II. Geographic Regions of Concern

1. North Atlantic (Canada-Maine border - Northeast Channel to Rhode Island - Connecticut border)
2. Middle Atlantic (Rhode Island - Connecticut border to Cape Hatteras, N.C.)
3. South Atlantic and Caribbean Islands (Cape Hatteras, N.C. to Key West, Fla. including Puerto Rico and the Virgin Islands)
4. Gulf of Mexico (Key West, Fla. to the Texas-Mexico border)
5. Pacific Southwest (Mexico border to Point Conception, Ca.)
6. Pacific Northwest (Point Conception Ca., to Washington-Canada border)
7. Alaska (Gulf of Alaska, Bering, Chuckchi and Beaufort Seas)
8. Hawaii and Pacific Islands
9. Great Lakes (Lake Ontario, Erie, Huron, Michigan, Superior and the Saint Lawrence River)

III. Causes of Ocean Pollution

1. Land-Use Practices; including habitat modification, nonpoint source pollution and facility siting
2. Marine Waste Disposal; including sewage sludge dumping, municipal sewage outfalls, industrial waste disposal, dredged materials dumping, radioactive waste disposal and ocean incineration

3. Marine Energy; including steam electric power plants, ocean thermal energy conversion, and other developmental energy technologies
4. Marine Mineral Resources; including oil and gas development, sand, gravel and shell mining, and brine-producing activities
5. Marine Transportation
6. Other Sources of Ocean Pollution; including marine recreation, fishing, fish processing and aquaculture
7. Not Source Specific

IV. Controlling and Minimizing Ocean Pollution

PART 2 - PROJECT CLASSIFICATION INDEX

I. Pollutants of Concern

1. Petroleum and Petroleum Products

Department of Agriculture: Project Number 6
Department of Commerce: Project Numbers 33, 44, 47, 61, 63, 92, 103 109, 113, 115, 117, 143, 146, 147, 160, 168, 178, 188, 195, 208, 219, 222, 226
Department of Defense: Project Numbers 246, 252
Department of Energy: Project Numbers 258, 260, 263, 267, 275, 295, 307, 308, 309, 311,
Environmental Protection Agency: Project Numbers 335-338, 340-365, 376, 377, 379, 388, 437, 439, 441, 445, 446-448, 450, 451, 455, 470, 473, 474, 475, 486, 487, 494, 501, 502, 503, 506, 512-517, 519, 523-527
Department of Health, Education and Welfare: Project Numbers 568, 569, 573, 574, 576
Department of the Interior: Project Numbers 590-600, 604-606, 630-657, 659-713, 721-729, 742-750, 752-787, 789-897
National Science Foundation: Project Numbers 902, 903
Department of Transportation: Project Numbers 928-931, 933, 935-938, 944-949, 951-953, 959, 961-963, 965-969

2. Synthetic Organics

Department of Agriculture: Project Numbers 2, 3, 4, 6
Department of Commerce: Project Numbers 38, 42, 43, 70-73, 83-85, 87, 92, 97, 98, 115, 128, 131, 145, 147, 150, 167, 185, 198, 199, 200-204, 206, 213-215, 219
Department of Energy: Project Numbers 263-265, 289
Evironmental Protection Agency: Project Numbers 366-373, 375, 378, 385, 380-385, 387, 389-400, 402-406, 408, 411, 415, 417, 430, 431, 436, 449, 454, 461-470, 472, 475, 479, 480, 482, 484, 485, 488, 496, 497, 499, 520, 530, 531, 533, 538, 545-548, 559, 561-563, 565
Department of Health, Education and Welfare: Project Numbers 568, 569 571, 574, 577, 586, 588, 589,
Department of the Interior: Project Number 737
National Science Foundation: Project Numbers 908, 909, 911
Department of Transportation: Project Numbers 934, 939, 940, 941, 942, 943, 944

3. Metals and Inorganic Chemicals

Department of Agriculture: Project Numbers 3, 5
Department of Commerce: Project Numbers 36, 38, 39, 40, 43, 64, 74,

90, 92, 102, 103, 109, 121, 126, 127, 129, 136, 140, 141, 150, 154, 155, 156, 157, 158, 159, 169, 184, 188, 195, 205, 209, 210, 211, 216, 219
Department of Defense: Project Number 237
Department of Energy: Project Numbers 263, 264, 269, 271, 272, 276, 279, 282, 289, 298, 310, 320
Environmental Protection Agency: Project Numbers 372, 403, 404, 406, 414, 420, 422, 431, 438, 446, 451, 452, 458, 468, 494, 499, 513, 521, 522, 533, 545, 546, 547, 548
Department of Health, Education and Welfare: Project Numbers 572, 574, 577, 584, 586, 588, 589
Department of the Interior: Project Numbers 607, 615, 619, 621, 625, 626, 631, 737
National Science Foundation: Project Numbers 904, 908, 909, 910
Nuclear Regulatory Commission: Project Numbers 922

4. Artificial Radionuclides

Department of Energy: Project Numbers 264, 268, 270, 273, 274, 275, 282, 285, 288, 290, 291, 292, 293, 294, 296, 303, 310, 322
Environmental Protection Agency: Project Number 532
Department of Health, Education and Welfare: Project Numbers 584, 586, 587
National Science Foundation: Project Number 904
Nuclear Regulatory Commission: Project Numbers 923, 924, 925, 926

5. Habitat Modification and Sediment Deposition

Department of Commerce: Project Numbers 52, 53, 54, 55, 56, 57, 58, 59, 60, 62, 66, 89, 114, 174, 182, 223, 235
Department of Defense: Project Numbers 229, 230, 232, 233, 234, 235, 236, 238-242. 249
Department of Energy: Project Numbers 297, 300
Environmental Protection Agency: Project Numbers 334, 409, 429, 432, 435, 440, 498, 504, 544
Department of the Interior: Project Numbers 609, 610, 714, 734
Department of Transportation: Project Number 958

6. Nutrients and Other Biostimulants

Department of Commerce: Project Numbers 26, 43, 73, 92, 136, 144, 149, 157, 179, 180 194, 206, 223, 224
Department of Defense: Project Number 237
Department of Energy: Project Numbers 278, 280, 283, 302
Environmental Protection Agency: Project Numbers 328, 401, 415, 421, 422, 423, 424, 438, 443, 459, 511, 531, 559, 561, 562, 563, 565
Department of the Interior: Project Numbers 619
Department of Transportation: Project Numbers 954, 955, 956, 557

7. Cooling Water

Department of Commerce: Project Numbers 123, 187
Department of Defense: Project Number 243
Department of Energy: Project Number 259, 263, 269, 312, 315
Environmental Protection Agency: Project Numbers 491, 500
Department of the Interior: Project Numbers 731, 732, 733, 735
Nuclear Regulatory Agency: Project Numbers 916, 918, 919, 920

8. Microorganisms and Pathogens

Department of Commerce: Project Numbers 50, 130, 142, 152, 153, 161, 162, 164, 165, 165, 166, 171, 176, 177, 183, 192, 193, 194, 220
Environmental Protection Agency: Project Numbers 325, 326, 327, 329, 330, 331, 332, 533
Department of Health, Education and Welfare: Project Numbers 575, 578
Department of the Interior: Project Number 658
Department of Transportation: Project Numbers 954, 955, 956, 957

9. Chlorination Products

Department of Energy: Project Numbers 266, 313, 318, 319, 471
Nuclear Regulatory Commission: Project Numbers 917, 921

10. Other Pollutants

Department of Defense: Project Numbers 253, 254, 257
Department of Energy: Project Number 321

11. Not Pollutant Specific

Department of Agriculture: Project Number 1
Department of Commerce: Project Numbers 8-25, 27-32, 34, 35, 37, 41, 45, 46, 48, 49, 51, 65, 67, 68, 69, 75-82, 86, 88, 91, 93-96, 99, 100, 101, 104-108, 111, 112, 116, 118, 119, 120, 122, 124, 125, 132-135, 137, 138, 139, 148, 151, 163, 170, 172, 173, 175, 181, 186, 189, 190, 191, 196, 197, 207, 212, 217, 218, 221, 225, 227, 228, 299,
Department of Defense: Project Numbers 231, 244, 245, 247, 248, 250, 251, 255, 256
Department of Energy: Project Numbers 261, 262, 277, 281, 284, 286, 287, 301, 304, 305, 306, 314, 316, 317, 323, 324
Environmental Protection Agency: Project Numbers 333, 339, 374, 386, 407, 410, 412, 413, 416, 418, 419, 425-428, 433, 434, 442, 444, 453, 456, 457, 460, 476, 477, 478, 481, 483, 489, 490, 492, 493, 495, 505, 507-510, 518, 528, 529, 534-537, 539-543, 549-558, 560, 564, 566, 567
Department of Health Education and Welfare: Project Numbers 570, 579-583 585
Department of the Interior: Project Numbers 601-603, 608, 611-614, 616-618, 620, 622-624, 627-629, 715-720, 730, 736, 738-741, 751
National Aeronautics and Space Administration: Project Numbers 898-901
National Science Foundation: Project Numbers 905-907, 912-915
Department of Transportation: 927, 950, 960, 964

II. Geographic Regions of Concern

1. North Atlantic (Canada - Maine border (Northeast Channel) to Rhode Island Connecticut border)

Department of Commerce: Project Numbers 105, 106, 139, 140, 142, 142, 146, 148, 149
Department of Energy: Project Numbers 267, 271
Environmental Protection Agency: Project Numbers 440, 448, 490, 498, 500-502, 516
Department of the Interior: Project Numbers 607, 640, 641-655, 723

2. Middle Atlantic (Rhode Island - Connecticut border to Cape Hatteras, N.C.)

Department of Agriculture: Project Numbers 3, 6
Department of Commerce: Project Numbers 8-43, 64, 65, 67-69, 74-81, 86, 106, 107, 109, 150-155, 157, 158, 160-162, 216
Department of Energy: Project Numbers 259-263, 269, 273, 277
Environmental Protection Agency: Project Numbers 439, 460, 477, 532, 536-554, 556-567
Department of Health, Education and Welfare: Project Number 584
Department of the Interior: Project Numbers 605, 613, 619, 620, 656, 657, 659-661
National Aeronautics and Space Administration: Project Number 899
Nuclear Regulatory Agency: Project Numbers 916, 920, 924
Department of Transportation: Project Numbers 950, 964

3. South Atlantic and Caribbean Islands (Cape Hatteras to Key West, Fla., includes Puerto Rico and U.S. Virgin Islands)

Department of Agriculture: Project Numbers 1, 5
Department of Commerce: Project Numbers 70-73, 83-85, 87, 96-98, 122, 123, 128, 163-169, 171
Department of Energy: Project Numbers 275, 278-280, 282-284, 318
Environmental Protection Agency: Project Numbers 428, 442, 443, 471, 473, 491, 511
Department of the Interior: Project Numbers 610-612, 616, 662-671, 676, 680, 721

4. Gulf of Mexico (Key West, Fla. to Texas-Mexico border)

Department of Commerce: Project Numbers 82, 88-95, 99-101, 120, 126, 130, 131, 170, 172-182, 184, 185
Department of Defense: Project Number 238
Department of Energy: Project Numbers 285, 286, 312, 214, 320, 321
Environmental Protection Agency: Project Numbers 432, 444-446, 455, 458, 459, 462, 467, 474, 513
Department of the Interior: Project Numbers 601, 605, 669, 672-675, 677-693, 722, 725, 726, 739

5. Pacific Southwest (Mexico border to Point Conception, California)

Department of Commerce: Project Numbers 186-188
Department of Energy: Project Numbers 307, 309
Environmental Protection Agency: Project Numbers 441, 527
Department of the Interior: Project Numbers 694-697, 705, 706, 709, 711, 712, 740, 741

6. Pacific Northwest (Point Conception California, to Washington - Canada border)

Department of Commerce: Project Numbers 44-51, 61, 66, 125, 189-191
Department of Defense: Project Numbers 229
Department of Energy: Project Numbers 287, 288, 294-297, 299, 300, 308, 425, 426
Environmental Protection Agency: Project Numbers 434, 438, 484, 485, 512, 532
Department of the Interior: Project Numbers 603, 606, 608, 622, 624, 627, 698-704, 707, 708, 710, 713, 724, 740, 741

7. Alaska (Gulf of Alaska, Bering, Chukchi and Beaufort Seas)

Department of Commerce: Project Numbers 113, 114, 117, 226
Department of Defense: Project Number 243
Department of Energy: Project Numbers 298, 311
Environmental Protection Agency: Project Numbers 345, 347, 357, 358, 433, 435, 514, 515
Department of the Interior: Project Numbers 606, 623, 632-638, 742-897
Department of Transportation: Project Number 928

8. Hawaii and Pacific Islands

Department of Commerce: Project Numbers 52-60, 62, 192-194
Department of Energy: Project Numbers 290-293, 317, 319
Environmental Protection Agency: Project Number 505
National Science Foundation: Project Numbers 902, 906, 909

9. Great Lakes (Lakes Ontario, Erie, Huron, Michigan, Superior and the Saint Lawrence River)

Department of Agriculture: Project Number 2
Department of Commerce: Project Numbers 132-138, 195, 197-203, 205-209, 211-215, 228
Department of Energy: Project Numbers 301, 302, 304-306
Environmental Protection Agency: Project Numbers 363, 401-409, 411-424, 529-531
Department of the Interior: Project Numbers 714-719, 729, 735, 736
National Aeronautics and Space Administration: Project Number 898
Nuclear Regulatory Commission: Project Numbers 923, 924
Department of Transportation: Project Number 928

10. Not Region Specific

Department of Agriculture: Project Number 4

Department of Commerce: Project Numbers 63, 102-104, 108, 110-112, 115, 116, 118, 119, 121, 124, 127, 129, 141, 143-145, 147, 156, 159, 183, 196, 204, 210, 217-225, 227
Department of Defense: Project Numbers 230-237, 239-242, 244-257
Department of Energy: Project Numbers 258, 264-266, 268, 270, 272, 274, 276, 281, 289, 303, 313, 315, 316, 322-324
Environmental Protection Agency: Project Numbers 325-344, 346, 348-356, 359-362, 364-400, 410, 427, 429-431, 436, 437, 447, 449, 450-454, 456, 457, 461, 463-466, 468-470, 472, 475, 476, 478-483, 486-489, 492-497, 499, 503, 504, 506-510, 517-526, 528, 533-535
Department of Health, Education and Welfare: Project Numbers 568-583, 585-589
Department of the Interior: Project Numbers 590-600, 602, 604, 609, 614, 615, 617, 618, 621, 625, 626, 628, 629-631, 639, 658, 720, 727, 728, 730-734, 737, 738
National Aeronautics and Space Administration: Project Number 900, 901
National Science Foundation: Project Numbers 903-905, 907, 908, 910-915
Nuclear Regulatory Commission: Project Numbers 917-919, 921, 922, 925 926
Department of Transportation: Project Numbers 927, 929-949, 951-963, 965-969

III. Causes of Ocean Pollution

1. Land-use Practices

Department of Agriculture: Project Numbers 4, 6, 66
Department of Commerce: Project Numbers 114, 151, 155, 170, 173, 174, 179, 180, 186, 188-190, 206
Department of Defense: Project Numbers 236, 239, 240
Environmental Protection Agency: Project Numbers 401, 403, 408, 411, 412, 415, 426, 432, 434, 435, 438, 453, 459, 462-468, 529-531, 535, 538, 540, 541, 546-548, 552, 556, 557, 559, 560-564
Department of the Interior: 609, 610, 612, 614, 619, 620-622, 624, 628, 629, 721-725, 734, 737-741, 743

2. Marine Waste Diposal

Department of Agriculture: Project Number 1
Department of Commerce: Project Numbers 8-31, 34-40, 43, 64, 65, 67-99, 101, 102, 107, 120, 141, 144, 148, 150, 153, 154, 157, 159, 161-164, 166, 169, 171, 172, 176, 177, 182, 183, 192-194, 207, 216, 220, 227, 228
Department of Defense: Project Numbers 229, 230, 232-235, 237, 238, 241-243, 248, 249, 251, 253, 254
Department of Energy: Project Numbers 265, 266, 303, 313, 322
Environmental Protection Agency: Project Numbers 325-333, 397, 399, 400, 409, 410, 414, 415, 431, 438, 440-442, 457, 471, 476, 505, 511, 528, 532-534, 540, 546-548, 560

Department of Health, Education and Welfare: Project Numbers 578, 589
Department of the Interior: Project Numbers 714, 715
National Aeronautics and Space Administration: Project Number 899
National Science Foundation: Project Numbers 904, 905
Department of Transportation: Project Numbers 941, 950, 964

3. Marine Energy

Department of Commerce: Project Numbers 123, 187
Department of Energy: Project Numbers 259, 276, 281, 287, 294, 297, 301, 305, 310-312, 314-316
Environmental Protection Agency: Project Numbers 491, 500, 525
Department of the Interior: Project Numbers 731-733, 735
Nuclear Regulatory Commission: Project Numbers 916-926

4. Marine Mineral Resources

Department of Commerce: Project Numbers 52-60, 62, 112, 113, 115-117, 145, 184, 226
Department of Energy: Project Numbers 258, 260, 267, 289, 295, 307-309, 320, 321
Environmental Protection Agency: Project Numbers 334, 335, 338, 339, 341, 342, 346, 437, 445-447, 450-452, 455, 458, 474, 484, 485, 513-515, 523, 524, 527, 576
Department of Health, Education and Welfare: Project Number 573
Department of the Interior: Project Numbers 590-598, 600-602, 604-606, 630-657, 659-665, 667-673, 675-713, 726-728, 742, 744-749, 751-759, 762-763, 765-776, 779-781, 784-792, 794-804, 807-816, 818-828, 830-834, 836, 840, 842, 843, 845, 846, 847, 849-861, 864-876, 878-894, 896, 897

5. Marine Transportation

Department of Defense: Project Numbers 244-247, 252, 255
Environmental Protection Agency: Project Numbers 342, 345, 370, 455, 469, 512, 514, 615
Department of the Interior: Project Numbers 639, 666, 729, 817
National Science Foundation: Project Numbers 902, 909
Department of Transportation: Project Numbers 939, 947, 953-959, 961-963, 968

6. Other Causes of Ocean Pollution

Environmental Protection Agency: Project Numbers 429, 544

7. Not Cause Specific

Department of Agriculture: Project Numbers 2, 3, 5

IV. Controlling and Minimizing Ocean Pollution

Department of Commerce: Project Numbers 44, 63, 143, 168, 222

Environmental Protection Agency: Project Numbers 336, 337, 344, 347-369, 371, 373-396, 398, 404-407, 473, 501, 516

Department of the Interior: Project Numbers 599, 750, 760, 761, 764, 777, 778, 782, 783, 793, 805, 806, 829, 835, 837, 838, 839, 841, 844, 848, 862, 863, 895

National Aeronautics and Space Administration: Project Number 900

Department of Transportation: Project Numbers 927-938, 940, 942-946, 948, 949, 951, 952, 960, 965-967, 969

Department of Commerce: Project Numbers 32, 33, 41, 42, 45-51, 61, 103-106, 108-11, 118, 119, 121, 122, 124-140, 142, 146, 147, 149, 152, 156, 158, 160, 165, 167, 175, 178, 181, 185, 191, 195-205, 208-215, 217-219, 221, 223-225

Department of Defense: Project Numbers 231, 250, 256, 257

Department of Energy: Project Numbers 261-264, 268-275, 277-280, 282-286, 288, 290-293, 296, 298-300, 302, 304, 306, 317-319, 323, 324

Environmental Protection Agency: Project Numbers 340, 343, 372, 402, 413, 416-425, 427, 428, 430, 433, 436, 439, 443, 444, 448, 449, 454, 456, 460, 461, 470, 472, 475, 477-483, 486-490, 492-499, 502-504, 506-510, 517-522, 526, 536, 537, 539, 542, 543, 545, 549-551, 553-555, 558, 565-567

Department of Health, Education and Welfare: Project Numbers 568-572, 574, 575, 577, 579-588

Department of the Interior: Project Numbers 603, 607, 608, 611, 613, 617, 618, 623, 625-627, 658, 674, 716-720, 730, 736

National Aeronautics and Space Administration: Project Numbers 898, 901

National Science Foundation: Project Numbers 903, 906-908, 910-915

APPENDIX B

Acronyms

I. Acronyms

AEC	Atomic Energy Commission
AOML	Atlantic Oceanographic and Meteorological Laboratories
APHA	American Public Health Association
ASTM	American Society for Testing and Materials
BLM	Bureau of Land Management
BOD	Biological oxygen demand
CEPEX	Controlled Ecosystem Pollution Experiment
CEQ	Council on Environmental Quality
CHEMTREX	Chemical Transportation Emergency Center
CHRIS	Chemical Hazards Response Information System
COE	Army Corps of Engineers
COPRDM	Interagency Committee on Ocean Pollution Research, Development, and Monitoring
CVS	Commercial Vessel Safety Program
DOA	U.S. Department of Agriculture
DOC	U.S. Department of Commerce
DOD	U.S. Department of Defense
DOE	U.S. Department of Energy
DOI	U.S. Department of the Interior
DOMES	Deep Ocean Mining Environmental Studies
DOT	U.S. Department of Transportation
ENDEX	Environmental Data Base Index
EPA	Environmental Protection Agency

ERL	Environmental Research Laboratories
FDA	Food and Drug Administration
FWPCA	Federal Water Pollution Control Act
FWS	Fish and Wildlife Service
GEOSECS	Geochemical Ocean Sections Study
GLERL	Great Lakes Environmental Research Laboratories
HACS	Hazard Assessment Computer System
HEW	U.S. Department of Health, Education, and Welfare
HERL	Health Effects Research Laboratory
IDOE	International Decade of Ocean Exploration Program
IMCO	Inter-Governmental Maritime Consultative Organization
LNG	Liquefied natural gas
MESA	Marine EcoSystems Analysis
MARAD	Maritime Administration
MEP	Marine Environmental Protection
NASA	National Aeronautics and Space Administration
NAWDEX	National Water Data Exchange
NBS	National Bureau of Standards
NDBO	National Data Buoy Office
NIEHS	National Institutes of Environmental Health Services
NIH	National Institutes of Health
NOAA	National Oceanic and Atmospheric Administration
NOS	National Ocean Survey
NPDES	National Pollution Discharge Elimination System
NMFS	National Marine Fisheries Service
NRC	Nuclear Regulatory Commission
NSF	National Science Foundation

NSSP	National Shellfish Sanitation Program
NTIS	National Technical Information Service
NWAFC	Northwest and Alaska Fisheries Center
OCSEAP	Outer Continental Shelf Environmental Assessment Program
OCS	Outer continental shelf
OHM-TADS	Oil and Hazardous Materials Technical Assessment
OMB	Office of Management and Budget
OMPA	Office of Marine Pollution Assessment
ORP	Evaluation of Radioactive Waste Dump Sites
OSTP	Office of Science and Technology Policy
OTEC	Ocean Thermal Energy Conversioin
PMEL	Pacific Marine Environmental Laboratory
RCRA	Resource Conservation and Recovery Act
R & D	Research and Development
R,D&M	Research, Development, and Monitoring
SPRO	Strategic Petroleum Reserve
SSC	Scientific Support Coordinators
SSIE	Smithsonian Scientific Information Exchange
STORET	Storage and Retrieval for Water Quality Data
TOSCA	Toxic Substances Control Act
UNEP	United Nations Environment Program
USCG	U.S. Coast Guard
USGS	U.S. Geological Survey

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